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BETTER FRUIT

VOLUME VII

NOVEMBER, 1912

NUMBER 5

Latest Census Report on the Fruit Industry of the United States

By the Census Bureau of the Department of Agriculture, Washington, D. C.



"A fellow can't get enough Good Apples to Eat"

"Why?"

Problem for the Fruit Grower and Fruit Dealer to Solve

*"HEALTH'S BEST WAY—
EAT APPLES EVERY DAY."*

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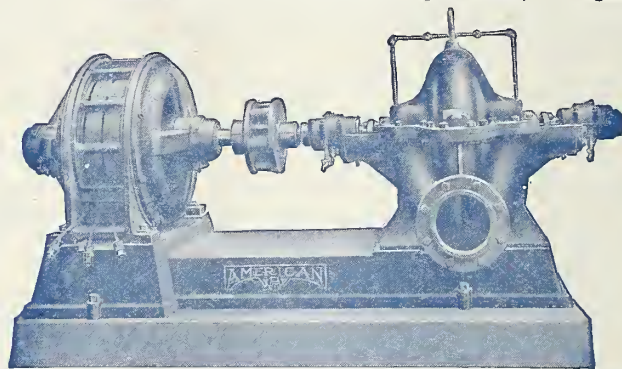
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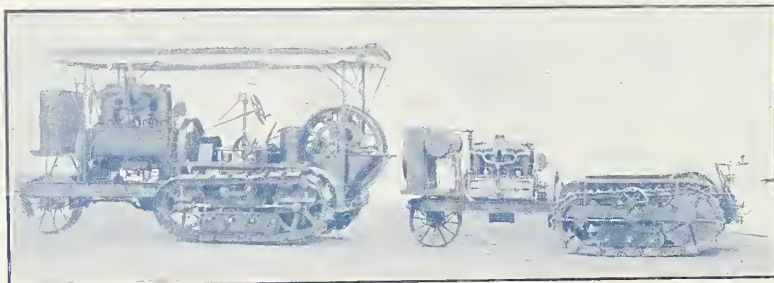
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Stroke of pistons, inches	8	6
Revolutions per minute	500	650
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Height over all	11' 1"	5' 4 1/2"
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With canopy		
Tread	82"	64 1/2"
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Water tank capacity, gallons	56	33
Distillate consumed per hour, gallons	2 1/2-4	1-2 1/2
Weight, fully equipped, lbs.	18,100	9,500
Without canopy, lbs.		9,880
With canopy, lbs.		
Track bearing, square inches	2000-4000	1,430
Width of track, inches	13-30	13

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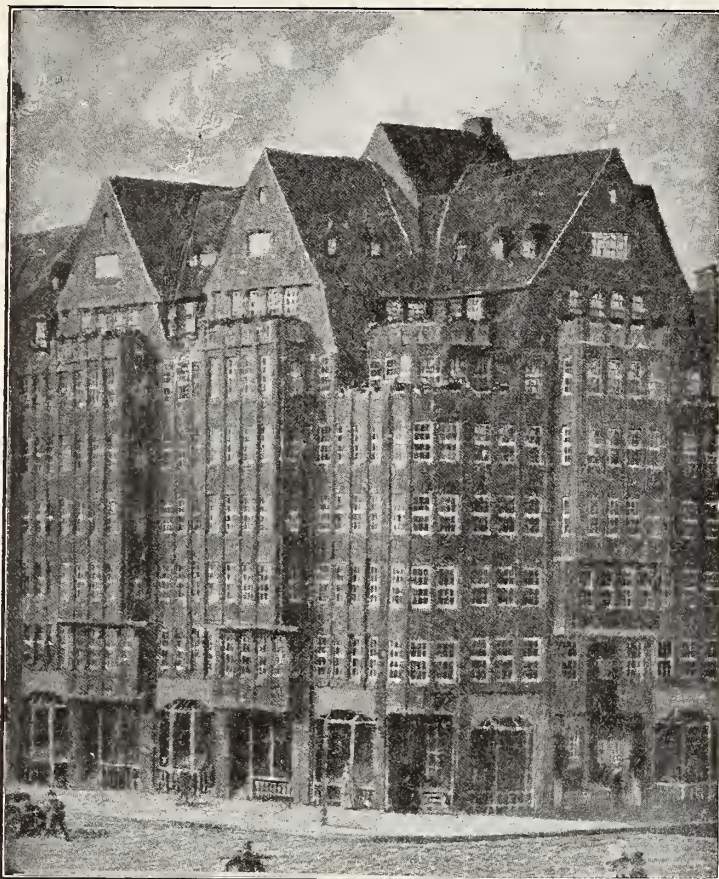
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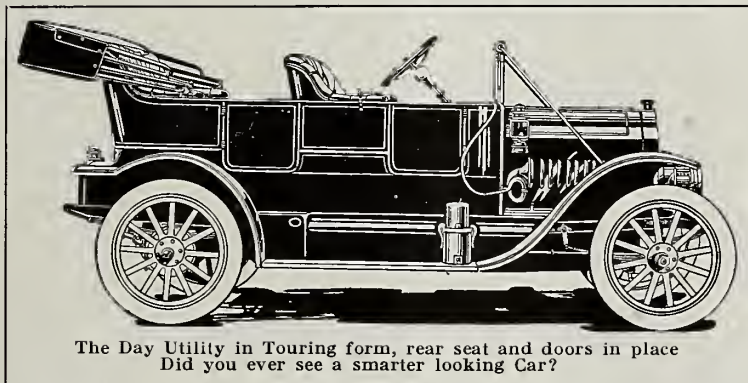
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Did you ever see a smarter looking Car?

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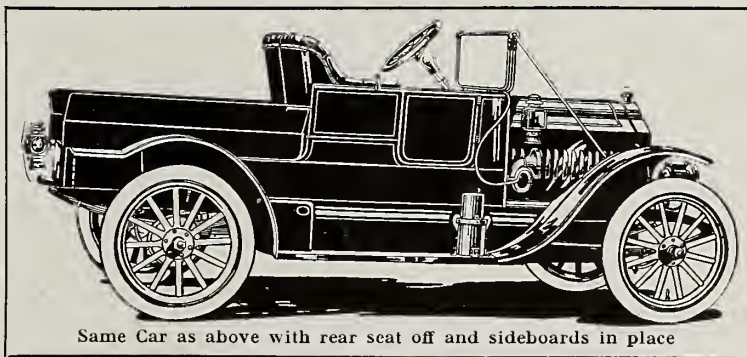
marks an era of economy and convenience in automobile building and automobile owning that places the motor car within reach of thousands who have heretofore considered it an expensive luxury.

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A car that will do the work of two or three horses—do it better and quicker, and one that is never too tired after the day's work is over to take the family out for a thirty or forty or fifty-mile spin in the evening.



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Top and Windshield, if desired, are \$50 extra

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The final test of a tree is the fruit it bears. The Stark method—critical selection of propagating stock, careful grafting and budding, together with absolutely right field methods—systematically followed for almost a century, means something in dollars and cents to you. Read what Stark Trees have done for this man:

"No other orchard in the northwest has made the showing mine has made, planted with Stark Bro's trees. I hold the record as the greatest prize-taker in the northwest. Space does not permit detailing the prizes, trophies and cups I have taken."—R. P. Wright, Chelan Co., Washington.

What Stark Trees have done for this well-known orchardist they will do for you. Attend the big apple shows and ascertain the name of the nursery that furnished trees for the prize-winning orchards—you will be surprised to learn what a large per cent were Stark Trees. Remember Stark Bro's are not only apple specialists, but specialists in all other Fruit Trees, Grape Vines and Bush Fruits. Stark Bros. apple trees—1-year tops and 3-year roots—are the best. After 95 years we find it impossible to grow a better tree.

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Let Us Help You Plan Your Orchard

Get started right—don't make the mistakes others have made. Let our Special Service Department aid you in the selection of varieties, and help you plan your plantings, advise you as to location, soil, when and how to plant and how to care for trees after planted. Remember we have lived our lives in nurseries and orchards—one reason why we are Stark Bro's Nurseries & Orchards Co. We are helping men every day to start money-making orchards. May we help you? Our help is free to you and places you under no obligation whatever to buy from us. But—of course we know you can't get as good trees elsewhere. For "Stark Trees are better."

Not What We Say But What Others Say

"I wish every orchard planter on this coast could see my trees. It is a great satisfaction to know that one firm can and does grow good, thrifty, well-rooted trees and ships the varieties ordered."—D. B. Hampton, Napa Co., California.

"The 600 trees planted last winter doing fine—lost only one. It pays to buy first-class stock."—J. H. McGee, Riverside Co., Calif.

"Have never found anything to equal Stark Trees in beauty and growth. Want to put out another orchard of them this fall."—I. Pugh, Lane Co., Oregon.

"Trees were finest I ever saw."—E. Bell, Bliss, Idaho.

"Last year we purchased 1000 trees from you and lost six."—Round Crest Orchard Co., Fremont Co., Colo.

"Planted 1,800 Stark Trees—first season made a four-foot growth, 100 per cent lived."—T. F. Randolph, Chaves Co., N. M.

"Spring, 1909, I purchased between 3000 and 4000 trees from you, Stark Delicious, Stark King David, Stayman Winesap and Winter Banana. Lost less than 1%; all varieties bore enough fruit for samples season 1911."—Wm. Potter, Bonner Co., Idaho.

"Planted nearly 30,000 Stark Trees this last season. Going over the orchard the last day or two I failed to find a single tree not growing."—Alexander McPherson, Chaves Co., N. M.

Stark Bro's N. & O. Co.

(Established 1816)

Box Number 102

Louisiana, Mo., U. S. A.

BETTER FRUIT

AN ILLUSTRATED MAGAZINE PUBLISHED MONTHLY IN THE INTEREST OF MODERN, PROGRESSIVE FRUIT GROWING AND MARKETING

Fruit Statistics of the United States

Furnished by the Department of Commerce and Labor, Washington, D. C. [Released for publication June 1, 1912]

STATISTICS have been printed from time to time of the fruit production of the United States, more or less authentic, but it has remained for the Department of Commerce and Labor, Bureau of the Census, of Washington, D. C., to furnish what may be termed the final word on this matter. "Better Fruit" is always glad to be able to pass along to its readers any and all information regarding the fruit industry and heartily recommends the careful perusal of the statistics here given. For convenience in the make-up of our forms it is necessary that we print the tabulated statistics separately from the reading matter introductory to each, but by following the instructions parenthesized at the end of each department the whole article may be easily and correctly read.

Apples

A preliminary statement of the general results of the thirteenth census relative to the number of farms reporting apple trees of bearing age and those not yet of bearing age, together with the number of trees in each class as of April 15, 1910, and giving the number of bushels of apples produced in 1909 and the value of the crop, was issued today by Director Durand of the Bureau of the Census, Department of Commerce and Labor. Comparable data are given for 1900 wherever possible. The report was prepared under the direction of Le Grand Powers, chief statistician, and John Lee Coulter, expert special agent, for agriculture. Further analysis of the report may result in slight modifications of the totals here presented before final publication, but it is not expected that they will affect materially the figures given herein.

At the census of 1900, taken as of June 1, there were reported 201,794,000 apple trees of bearing age, as against 151,323,000 trees in 1910 (census taken as of April 15), a decrease of 50,471,000 trees, or 33.4 per cent. In 1910 there were 2,980,398 farms reporting the growing of apple trees, or 46.8 per cent of the total number of farms in the United States. The average number of trees per farm reporting is given as 51. No report was received in 1900 showing the number of farms reporting. The returns of the 1900 census, likewise, did not secure the number of trees under bearing age. In 1910, however, 1,498,746 farms, or 23.6 per cent of the total, had 65,792,000 trees not of bearing age, or an average of 44 per farm. The present census shows that in 1909 there were produced in the

United States 147,522,000 bushels of apples, having a total value of \$83,231,000. The production at that time was somewhat less than it was ten years previously, when 175,397,000 bushels were gathered. The reports of the 1900 census give no information as to value of apples.

Of the nine main geographical divisions into which the census divides the country, the East North Central division, in 1910 and 1900, reported the

producing trees, as compared with 28,640,000 in 1900, the decrease amounting to 8,338,000 trees. The number of bushels gathered in 1909 was 37,865,000, valued at \$19,857,000. In 1899 the trees in this division produced 52,813,000 bushels. These four divisions reported over 67 per cent of the total product for 1909.

Among the several states, Missouri, New York and Illinois, together contained in 1910 almost 25 per cent of all apple trees of bearing age in the United States. The number of trees of bearing age in Missouri at the census of 1910 was 14,360,000, this being a decrease since 1900 of 5,680,000 trees. The production of apples in 1909 amounted to 9,969,000 bushels, while in 1900 it was 6,496,000 bushels, a gain of 3,473,000 bushels. The value of the 1909 crop was \$4,886,000. New York reported 11,248,000 trees of bearing age in 1910, against 15,055,000 trees in 1900. This state alone produced more apples in 1909 than the entire East North Central division, 25,409,000 bushels, valued at \$13,343,000. In 1899 a crop of 24,111,000 bushels was gathered. In 1910 there were 9,901,000 trees of bearing age in the State of Illinois, while in 1900 the number was 13,430,000 trees. Over 3,093,000 bushels of apples were produced in 1909, against 9,178,000 bushels in 1899, a falling off of over 6,000,000 bushels. The value of the 1909 crop was \$2,112,000. While the States of Pennsylvania and Michigan did not report as large a number of trees in 1910 as the above-named states, they each produced a considerably greater quantity of apples than Missouri or Illinois. (Further details are shown in the table I.)

Pears

A preliminary statement of the general results of the thirteenth census relative to the number of farms reporting pear trees of bearing age and those not yet of bearing age, together with the number of trees in each class as of date April 15, 1910, and giving the number of bushels of pears produced in 1909 and value of the crop, was issued today by Director Durand of the Bureau of the Census, Department of Commerce and Labor. Comparable data are given for 1900 wherever possible. The report was prepared under the direction of Le Grand Powers, chief statistician, and John Lee Coulter, expert agent, for agriculture. Further analysis of the report may result in slight modifications of the totals here presented before final publication, but it is not expected

Features of this Issue

FRUIT STATISTICS OF THE UNITED STATES

HOOD RIVER FRUIT GROWERS' FIRST ANNUAL CHAUTAUQUA

APPLE EXPORTS FOR THE SEASON OF 1911-1912

EXPERIMENTAL ORCHARD HEATING IN IOWA

ORCHARD DEVELOPMENT IN THE SPOKANE VALLEY

TABLE I—PRODUCTION OF APPLES IN THE UNITED STATES
By Geographic Divisions and States: Censuses of 1910 and 1900

Division or State	Trees reported April 15, 1910 Of bearing age		Not of bearing age		Products of 1909		Trees June 1, 1900	
	Farms reporting	Number (thousands)	Farms reporting	Number (thousands)	Bushels (thousands)	Value (thousands)	Bushels (thousands)	Value (thousands)
United States	2,980,398	151,323	1,498,746	65,792	147,522	\$83,231	201,794	175,397
<i>Geographic Divisions</i>								
New England	137,765	8,219	45,167	2,095	10,508	6,273	11,127	11,649
Middle Atlantic	378,507	20,302	130,699	5,849	37,865	19,857	28,640	52,813
East North Central	773,570	34,135	372,600	10,610	25,081	14,669	48,493	47,650
West North Central	562,827	31,745	288,669	9,725	22,633	11,792	43,678	14,321
South Atlantic	496,527	20,374	244,593	10,065	18,375	9,461	25,526	26,774
East South Central	363,879	12,273	213,700	5,387	13,163	6,074	19,193	12,410
West South Central	160,234	11,838	122,692	7,225	3,240	2,085	11,842	3,806
Mountain	36,412	4,615	32,182	6,079	5,718	5,536	4,855	883
Pacific	70,677	7,522	48,444	8,157	10,938	7,484	8,440	5,091
<i>New England</i>								
Maine	42,976	3,477	17,362	1,045	3,636	2,122	4,185	1,422
New Hampshire	20,420	1,241	5,311	207	1,108	638	2,034	1,979
Vermont	23,644	1,184	7,205	220	1,460	752	1,675	1,177
Massachusetts	27,937	1,367	9,278	356	2,550	1,780	1,852	3,023
Rhode Island	3,327	152	1,005	55	213	147	214	339
Connecticut	19,461	799	5,006	212	1,541	833	1,167	3,709
<i>Middle Atlantic</i>								
New York	168,667	11,248	48,007	2,829	25,109	13,343	15,055	24,111
New Jersey	21,127	1,051	5,851	520	1,407	956	1,811	4,641
Pennsylvania	188,713	8,090	76,841	2,501	11,048	5,558	11,774	24,061
<i>East North Central</i>								
Ohio	201,044	8,505	77,900	2,438	4,664	2,971	12,953	20,617
Indiana	158,104	5,765	74,256	1,962	2,759	1,721	8,625	8,620
Illinois	160,215	9,901	60,631	2,548	3,093	2,112	13,430	9,178
Michigan	153,026	7,534	87,846	2,253	12,332	5,969	10,928	8,932
Wisconsin	101,181	2,430	71,967	1,409	2,232	1,897	2,557	303
<i>West North Central</i>								
Minnesota	59,780	1,380	55,340	1,572	1,044	769	876	120
Iowa	148,759	5,847	74,687	1,914	6,747	3,551	6,870	3,130
Missouri	181,396	14,360	75,035	3,625	9,969	4,886	20,040	6,496
North Dakota	1,248	16	3,906	70	4	7	2	1
South Dakota	9,316	275	13,510	461	192	159	165	17
Nebraska	57,408	2,937	29,920	967	3,321	1,613	3,877	1,343
Kansas	104,920	6,930	36,271	1,116	1,356	808	11,848	3,214
<i>South Atlantic</i>								
Delaware	6,741	430	2,231	264	183	115	568	703
Maryland	34,798	1,288	17,157	661	1,823	902	1,824	3,151
District of Columbia	34	2	3	.....	3	2	1	.....
Virginia	115,881	7,005	61,499	3,436	6,104	3,130	8,190	9,836
West Virginia	76,122	4,571	46,837	2,772	4,225	2,461	5,441	7,496
North Carolina	159,883	4,910	68,268	1,835	4,776	2,015	6,439	4,663
South Carolina	40,425	582	20,689	269	363	276	695	252
Georgia	62,033	1,878	27,276	822	896	556	2,360	671
Florida	610	8	633	6	3	4	8	2
<i>East South Central</i>								
Kentucky	133,037	5,538	68,478	2,106	7,368	3,067	8,757	6,054
Tennessee	123,411	4,839	67,350	2,117	4,640	2,172	7,714	5,388
Alabama	65,379	1,468	40,979	738	888	621	2,016	719
Mississippi	42,052	428	36,893	425	266	214	706	249
<i>West South Central</i>								
Arkansas	67,716	7,650	46,394	3,940	2,296	1,323	7,486	2,811
Louisiana	8,885	93	8,082	97	34	29	139	69
Oklahoma	47,578	2,956	39,172	2,060	742	573	*2,732	*334
Texas	36,055	1,139	29,044	1,128	168	161	1,485	592
<i>Mountain</i>								
Montana	3,167	697	3,633	1,308	567	567	531	44
Idaho	9,114	1,006	9,447	1,540	660	611	982	224
Wyoming	737	28	1,175	84	18	38	9	1
Colorado	7,986	1,688	6,496	1,973	3,559	3,405	2,005	258
New Mexico	5,242	543	5,489	914	417	421	483	142
Arizona	822	62	965	54	73	109	46	13
Utah	8,419	517	4,631	789	350	320	716	190
Nevada	625	74	346	17	74	66	83	11
<i>Pacific</i>								
Washington	27,156	3,009	21,401	4,863	2,672	2,926	2,736	729
Oregon	23,850	2,030	14,327	2,241	1,931	1,657	2,826	874
California	19,671	2,483	12,716	1,054	6,335	2,902	2,878	3,488

* Includes Indian Territory.

TABLE II—PRODUCTION OF PEARS IN THE UNITED STATES
By Geographic Divisions and States: Censuses of 1910 and 1900

United States	1,276,366	15,172	611,788	8,804	8,841	\$7,911	17,716	6,625
<i>Geographic Divisions</i>								
New England	48,188	297	13,171	98	234	259	357	182
Middle Atlantic	215,396	3,670	81,189	2,123	2,185	2,029	3,925	2,185
East North Central	360,541	3,560	132,083	1,442	1,623	1,332	3,799	781
West North Central	159,815	1,154	70,256	589	214	240	1,045	86
South Atlantic	200,902	2,326	111,600	880	975	680	2,292	741
East South Central	129,462	832	88,682	507	536	450	971	181
West South Central	92,558	1,045	70,506	936	192	193	1,516	225
Mountain	15,955	312	13,393	417	268	371	613	133
Pacific	53,549	1,975	30,908	1,812	2,614	2,357	3,198	2,103
<i>New England</i>								
Maine	10,857	47	3,170	13	39	44	40	11
New Hampshire	7,013	37	1,690	9	21	25	38	19
Vermont	6,222	26	2,014	8	24	24	28	10
Massachusetts	13,930	113	3,535	38	96	110	149	89
Rhode Island	1,781	17	382	5	13	15	23	12
Connecticut	8,385	57	2,380	24	41	42	79	41
<i>Middle Atlantic</i>								
New York	85,725	2,142	26,773	1,503	1,343	1,418	2,184	960
New Jersey	11,078	732	3,439	238	463	255	926	791
Pennsylvania	118,593	797	50,977	382	379	356	815	434
<i>East North Central</i>								
Ohio	113,897	899	38,248	334	375	333	921	245
Indiana	94,787	709	33,869	230	320	244	868	232
Illinois	68,556	786	25,593	234	249	203	796	134
Michigan	75,567	1,136	29,058	624	666	536	1,187	171
Wisconsin	7,734	30	5,315	20	13	17	27	2
<i>West North Central</i>								
Minnesota	264	3	440	4	.....	.....	4	.....
Iowa	29,784	191	15,370	123	44	59	104	5
Missouri	72,255	607	29,257	272	143	149	549	58
North Dakota	5	.....	61	.....	.....	.....	.....	.....
South Dakota	216	2	685	5	.....	.....	.....	.....
Nebraska	10,325	59	7,821	51	7	10	58	1
Kansas	46,966	292	16,622	133	19	22	328	22

that they will affect materially the figures given herein.

At the census of 1900, taken as of June 1, there were reported 17,716,000 pear trees of bearing age, as against 15,172,000 trees in 1910 (census taken as of April 15), a decrease of 2,544,000 trees, or 16.8 per cent. In 1910 there were 1,276,366 farms reporting the growing of pear trees, or 20.1 per cent of the total number of farms in the United States. The average number of trees per farm reporting is given as 12. No report was received in 1900 showing the number of farms reporting. The returns of the 1900 census, likewise, did not secure the number of trees under bearing age. In 1910, however, 611,788 farms (or 9.6 per cent of the total) had 8,804,000 trees not of bearing age, or an average of 14 per farm. The present census shows that in 1909 there were produced in the United States 8,841,000 bushels of pears, having a total value of \$7,911,000. The production at that time was somewhat greater than it was ten years previously, when 6,625,000 bushels were gathered. The reports of the 1900 census give no information as to the value of pears.

Of the nine main geographical divisions into which the census divides the country, the Middle Atlantic division, in 1910 and 1900, reported largest number of trees of bearing age, 3,670,000 and 3,925,000, respectively. A total of 2,185,000 bushels of pears were gathered in both 1909 and 1899. The value of the crop in 1909 was \$2,029,000. The division ranking next in the number of trees of bearing age is East North Central. In 1910 this division had 3,560,000 trees of bearing age, against 3,799,000 trees in 1900. At the present census 1,623,000 bushels of pears were produced by this division, valued at \$1,332,000. Ten years ago the production amounted to 784,000 bushels. The South Atlantic division, with 2,326,000 trees of bearing age, is third in rank. In 1900 the corresponding number of trees was 2,292,000, a slight gain thus being shown. The trees of bearing age in 1909 produced 975,000 bushels, valued at \$680,000; but in 1899 there were gathered only 744,000 bushels, the increase during the ten years being 231,000 bushels. The Pacific division also reports a relatively large number of trees of bearing age and shows more pears produced than any of the other divisions. In 1910 there were 1,975,000 producing trees, as compared with 3,198,000 in 1900, the decrease amounting to 1,223,000 trees. The number of bushels gathered in 1909 was 2,614,000, valued at \$2,357,000. In 1899 the trees in this division produced 2,103,000 bushels. These four divisions reported 76.0 per cent of the total product for 1909.

Among the several states, New York, California and Michigan, together contained in 1910 over 30 per cent of all pear trees of bearing age in the United States. The number of such trees in New York at the census of 1910 was 2,142,000, this being a decrease during the ten years of 42,000 trees. The pro-

duction of pears in 1909 amounted to 1,343,000 bushels, while in 1900 it was only 960,000 bushels, a gain of 383,000 bushels. The value of the 1910 crop was \$1,418,000. California reported 1,411,000 trees of bearing age in 1910, against 2,513,000 trees in 1900. This state alone produced more pears in 1909 than the entire East North Central division, 1,928,000 bushels, valued at \$1,661,000. In 1899 a crop of 1,913,000 bushels was gathered. In 1910 there were 1,136,000 trees of bearing age in the State of Michigan, while in 1900 the number was 1,187,000 trees. A total of 666,000 bushels of pears were produced in 1909, against 171,000 bushels in 1899, an increase of over 495,000 bushels. The value of the 1909 crop was \$536,000. (Further details are shown in the table II.)

Peaches and Nectarines

A preliminary statement of the general results of the thirteenth census relative to the number of farms reporting peach and nectarine trees of bearing age and those not yet of bearing age, together with the number of trees in each class as of date April 15, 1910, and giving the number of bushels of peaches and nectarines produced in 1909 and the value of the crop, was issued today by Director Durand of the Bureau of the Census, Department of Commerce and Labor. Comparable data are given for 1900 wherever possible. The report was prepared under the direction of Le Grand Powers, chief statistician, and John Lee Coulter, expert special agent, for agriculture. Further analysis of the report may result in slight modifications of the total here presented before final publication, but it is not expected that they will affect materially the figures given herein.

At the census of 1900, taken as of June 1, there were reported 99,919,000 peach and nectarine trees of bearing age, as against 94,507,000 trees in 1910 (census taken as of April 15), a decrease of 5,412,000 trees, or 5.7 per cent. In 1910 there were 1,843,610 farms reporting the growing of peach and nectarine trees, or 29 per cent of the total number of farms in the United States. The average number of trees per farm reporting is given as 54. No report was received in 1900 showing the number of farms reporting. The returns of the 1900 census, likewise, did not secure the number of trees under bearing age. In 1910 822,334 farms, or 12.9 per cent of the total, had 42,266,000 trees not of bearing age, or an average of 51 per farm. The present census shows that in 1909 there were produced in the United States 35,470,000 bushels of peaches and nectarines, having a total value of \$28,781,000. In 1899 a crop of 15,434,000 bushels was gathered.

Of the nine main geographical divisions into which the census divides the country, the West South Central, in 1910, reported the largest number of trees of bearing age, 22,285,000; in 1900 the number reported was 17,918,000. In 1909 a total of 3,280,000 bushels of

TABLE II—PRODUCTION OF PEARS IN THE UNITED STATES—Continued
By Geographic Divisions and States: Censuses of 1910 and 1900

Division or State	Trees reported April 15, 1910		Products of 1909		Trees June 1, 1900		Products of 1899	
	Farms reporting	Number (thou- sands)	Farms reporting	Number (thou- sands)	Bushels (thou- sands)	Value (thou- sands)	Bushels (thou- sands)	Value (thou- sands)
<i>South Atlantic</i>								
Delaware	1,451	150	997	91	105	\$ 52	395	156
Maryland	23,199	541	7,893	138	367	169	690	302
District of Columbia	36	1	2	.....	.....	.....	1	.....
Virginia	55,122	457	29,354	255	74	63	291	88
West Virginia	25,729	155	20,128	103	30	32	110	19
North Carolina	45,093	243	30,630	150	81	81	139	26
South Carolina	17,261	105	10,899	55	66	68	73	20
Georgia	21,247	263	10,284	70	150	135	385	49
Florida	5,764	111	1,413	19	98	80	208	81
<i>East South Central</i>								
Kentucky	42,471	337	23,651	132	252	188	322	77
Tennessee	41,261	233	28,015	175	84	78	264	44
Alabama	24,288	142	16,584	99	100	87	207	23
Mississippi	21,442	119	20,432	101	101	97	178	37
<i>West South Central</i>								
Arkansas	19,024	222	18,615	197	38	38	202	25
Louisiana	8,227	58	6,340	38	36	31	75	29
Oklahoma	24,910	207	19,899	252	7	9	*194	*5
Texas	40,397	558	25,652	419	111	111	1,045	166
<i>Mountain</i>								
Montana	586	10	663	13	8	12	8	.....
Idaho	5,463	65	5,114	77	43	48	129	25
Wyoming	51*	.....	155	1	.....	.....	.....	.....
Colorado	1,890	100	2,076	171	133	211	169	19
New Mexico	2,093	37	2,718	100	29	30	40	15
Arizona	745	16	824	13	13	21	32	13
Utah	4,747	79	1,642	40	39	44	229	60
Nevada	380	4	201	2	4	5	6	1
<i>Pacific</i>								
Washington	20,343	291	13,752	618	311	329	311	78
Oregon	18,133	274	8,621	796	375	367	374	112
California	15,073	1,411	8,532	398	1,928	1,661	2,513	1,913

* Includes Indian Territory.

TABLE III—PRODUCTION OF PEACHES AND NECTARINES IN THE UNITED STATES
By Geographic Divisions and States: Censuses of 1910 and 1900

United States	1,843,610	94,507	822,334	42,266	35,470	\$28,781	99,919	15,134
<i>Geographic Divisions</i>								
New England	12,860	724	7,997	572	407	632	936	105
Middle Atlantic	111,965	6,057	68,429	5,760	3,201	4,018	8,792	1,231
East North Central	379,702	11,035	161,082	6,972	5,121	5,173	19,848	717
West North Central	308,544	13,266	93,612	2,582	1,643	1,251	11,230	212
South Atlantic	360,895	20,583	153,940	6,138	5,572	4,888	22,029	1,112
East South Central	343,358	10,313	158,426	3,865	5,776	1,099	10,180	550
West South Central	274,530	22,285	134,198	8,735	3,280	2,761	17,918	2,193
Mountain	15,110	1,605	14,408	1,696	940	1,071	1,005	267
Pacific	36,646	8,639	30,242	5,946	9,531	4,887	7,981	8,745
<i>New England</i>								
Maine	683	5	320	3	2	3	10	2
New Hampshire	2,724	58	1,236	35	23	38	49	6
Vermont	183	5	137	2	2	4	5	1
Massachusetts	5,038	155	3,252	162	92	139	301	28
Rhode Island	814	39	516	31	18	31	48	6
Connecticut	3,413	462	2,536	339	270	418	523	62
<i>Middle Atlantic</i>								
New York	25,926	2,157	14,337	2,217	1,736	2,014	2,523	467
New Jersey	5,783	1,216	5,493	1,364	441	653	2,747	621
Pennsylvania	80,256	2,383	48,599	2,179	1,024	1,351	3,522	113
<i>East North Central</i>								
Ohio	102,863	3,133	50,736	2,092	1,036	1,349	6,363	241
Indiana	115,090	2,130	46,962	1,145	1,174	1,223	2,926	69
Illinois	114,165	2,860	34,411	739	1,223	1,000	2,448	67
Michigan	17,060	2,907	28,377	2,991	1,687	1,700	8,104	340
Wisconsin	524	4	596	4	1	1	7	.....
<i>West North Central</i>								
Minnesota	101	2	185	4	1	1	2	.....
Iowa	37,135	1,091	14,185	283	23	25	516	5
Missouri	152,632	6,588	12,896	1,404	1,485	1,111	4,557	61
North Dakota	11	.....	54	1	.....	.....	.....	.....
South Dakota	85	2	325	5	.....	.....	1	.....
Nebraska	25,199	1,188	10,570	264	110	91	1,056	9
Kansas	93,378	4,395	25,397	621	25	23	5,098	137
<i>South Atlantic</i>								
Delaware	3,853	1,177	1,069	212	17	21	2,442	10
Maryland	14,464	1,498	9,027	805	325	362	4,018	172
District of Columbia	8	.....	1	.....	.....	.....	.....	.....
Virginia	63,172	1,586	29,415	781	243	227	1,939	357
West Virginia	34,903	1,425	20,703	1,441	329	369	1,696	18
North Carolina	110,106	2,662	45,367	861	1,344	1,042	2,774	374
South Carolina	49,935	1,336	20,523	350	643	557	1,137	129
Georgia	74,643	10,609	22,708	1,531	2,555	2,183	7,669	260
Florida	9,811	291	5,127	157	115	128	354	92
<i>East South Central</i>								
Kentucky	93,343	2,245	43,002	1,111	1,623	1,062	2,884	35
Tennessee	101,871	3,164	44,328	1,191	1,579	1,055	2,749	78
Alabama	80,762	3,177	34,451	839	1,417	1,056	2,690	185
Mississippi	67,382	1,726	36,645	725	1,157	925	1,857	252
<i>West South Central</i>								
Arkansas	77,332	6,860	40,889	2,885	1,902	1,503	4,062	334
Louisiana	22,128	903	12,551	316	291	228	759	154
Oklahoma	66,111	1,784	33,046	2,575	358	326	5,849	305
Texas	108,959	9,738	47,712	2,959	730	704	7,248	1,400
<i>Mountain</i>								
Montana	19	1	117	3	.....	.....	2	.....
Idaho	2,982	73	3,401	213	19	28	80	18
Wyoming	6	.....	71	.....	.....	.....	.....	.....
Colorado	2,823	793	2,676	606	692	765	320	47
New Mexico	2,982	136	4,094	184	33	37	117	76
Arizona	1,266	51	1,030	33	50	80	67	38
Utah	4,765	544	2,856	651	143	156	410	85
Nevada	237	6	163	5	3	5	9	3
<i>Pacific</i>								
Washington	7,139	537	8,199	1,028	84	119	227	81
Oregon	7,870	273	6,812	508	179	194	282	101
California	21,637	7,829	15,231	1,110	9,267	4,574	7,172	8,563

peaches and nectarines were gathered, against 2,193,000 bushels in 1899. The value of the crop in 1909 was \$2,761,000. The division next in rank in the number of trees of bearing age is the South Atlantic, which had in 1910 a total of 20,583,000 trees, as compared with 22,029,000 in 1900. At the present census 5,572,000 bushels of peaches and nectarines were produced in this division, valued at \$4,888,000. Ten years before the production amounted to 1,412,000 bushels, an increase during the decade of 4,160,000 bushels. The West North Central division, with 13,266,000 trees of bearing age, is third in rank. In 1900 the corresponding number of trees was 11,230,000, an increase of over 18 per cent being shown. The trees of bearing age in 1909 produced 1,643,000 bushels, valued at \$1,251,000; but in 1899 there were gathered only 212,000 bushels, the increase during the ten years being 1,431,000 bushels. While the Pacific division reports a relatively smaller number of trees of bearing age than any of the above named, or even the East North and the East South Central divisions, it ranks highest in the number of bushels of fruit produced, 9,531,000. The value, \$4,887,000, however, was slightly less than that for the South Atlantic division. The East North and South Central divisions combined produced almost 11,000,000 bushels. These four divisions reported over 73 per cent of the total product for 1909.

The states having the largest number of trees of bearing age in 1910 are: Georgia, Texas, California and Missouri, their combined totals comprising over 36 per cent of the total for the United States. In 1900 Georgia had 7,669,000 trees of bearing age, against 10,609,000 in 1910, a gain of 2,940,000 trees, or 38.3 per cent. This state produced 2,555,000 bushels in 1909, valued at \$2,183,000; in 1899 the production amounted to 260,000 bushels. There were 9,738,000 trees of bearing age in Texas at the last census, while in 1900 there were 7,248,000 trees. But the production in 1899 was almost double what it was in 1909. At the earlier census the crop amounted to 1,400,000 bushels and at the later census to only 730,000 bushels. The value of the fruit in 1909 was \$704,000. The farms in California reported a total of 7,829,000 trees of bearing age in 1910, compared with 7,472,000 in 1900. The production in 1909 was greater in this state than in any other, 9,267,000 bushels. The value was \$4,574,000. In 1899 there were produced 8,563,000 bushels. Missouri had 6,588,000 trees of bearing age in 1910, against 4,577,000 in 1900. The 1909 crop amounted to 1,485,000 bushels, while in 1899 it was only 61,000 bushels. The value of the product in 1909 was \$1,111,000. (Further details are shown in the table III.)

Cherries

A preliminary statement of the general results of the thirteenth census relative to the production of cherries in the United States was issued today by Director Durand of the Bureau of the Census, Department of Commerce and

TABLE IV—PRODUCTION OF CHERRIES IN THE UNITED STATES, 1909 AND 1899

Division or State	Trees of bearing age, 1910		Products of 1909		Trees reported June 1, 1900		Products of 1899	
	Farms reporting	Number of trees	Bushels	Value			Bushels	
United States	1,218,667	11,822,044	4,126,099	\$7,231,160	11,943,287		2,873,499	
<i>Geographic Divisions</i>								
New England	15,990	68,236	14,904	38,424	71,988		23,445	
Middle Atlantic	179,674	1,851,144	791,326	1,541,708	1,584,921		775,587	
E. North Central	436,846	3,853,974	1,410,298	2,362,344	3,490,999		851,326	
W. North Central	291,000	2,768,659	515,690	935,537	3,229,439		297,873	
South Atlantic	143,563	1,063,825	327,706	394,990	1,041,206		391,799	
E. South Central	71,569	453,262	94,873	143,166	530,564		49,457	
W. South Central	43,461	385,502	9,954	14,401	573,239		13,635	
Mountain	17,480	390,644	147,854	300,485	286,269		33,956	
Pacific	46,174	986,798	813,494	1,500,105	1,134,562		436,421	
<i>States</i>								
California	9,177	522,394	501,013	951,624	686,891		318,960	
Illinois	104,808	843,283	287,376	453,474	727,973		204,279	
Indiana	108,189	815,742	363,993	508,516	896,641		228,485	
Iowa	93,359	908,764	260,432	455,022	791,327		118,743	
Michigan	73,913	760,183	338,945	590,829	895,375		194,541	
New York	59,408	673,989	271,597	544,508	539,742		218,642	
Ohio	117,806	1,144,271	338,644	657,406	697,270		192,954	
Oregon	17,281	223,456	181,089	269,934	237,155		65,347	
Pennsylvania	112,165	1,075,031	475,093	969,975	956,273		474,940	
Virginia	47,492	352,783	132,671	134,428	269,690		188,695	
All other states	505,009	4,502,238	975,246	1,755,444	5,244,950		667,915	

TABLE V—PRODUCTION OF PLUMS AND PRUNES IN THE UNITED STATES, 1909 AND 1899

Division or State	Trees of bearing age, 1910		Products of 1909		Trees reported June 1, 1900		Products of 1899	
	Farms reporting	Number of trees	Bushels	Value			Bushels	
United States	1,120,130	23,445,009	15,480,170	\$10,299,495	30,780,892		8,764,032	
<i>Geographic Divisions</i>								
New England	25,872	176,038	62,733	110,178	177,126		24,976	
Middle Atlantic	118,834	1,709,712	858,274	928,673	1,769,479		428,583	
E. North Central	299,672	2,739,635	568,383	674,671	3,662,320		596,753	
W. North Central	253,304	3,570,012	499,784	535,374	3,761,789		428,048	
South Atlantic	114,141	1,152,080	257,912	236,221	1,532,414		190,561	
E. South Central	93,098	1,324,616	442,125	314,199	2,177,474		228,558	
W. South Central	107,851	2,337,965	327,260	267,703	2,825,796		397,266	
Mountain	20,616	678,268	366,056	319,651	1,242,413		248,223	
Pacific	56,742	9,756,683	12,097,643	6,912,825	13,632,081		6,221,064	
<i>States</i>								
Arkansas	23,884	731,276	194,649	137,003	1,082,749		174,734	
California	18,105	7,168,705	9,317,979	5,473,539	9,823,713		5,632,036	
Idaho	6,317	302,855	179,027	132,804	585,173		164,468	
Michigan	49,498	464,917	181,188	205,765	1,378,952		213,682	
Missouri	92,163	917,851	234,872	211,472	745,187		111,603	
New York	62,024	919,017	553,522	519,192	988,147		303,688	
Ohio	96,203	1,001,734	215,657	278,505	892,441		81,435	
Oregon	18,308	1,764,896	1,747,587	838,783	2,517,523		359,821	
Pennsylvania	82,758	744,148	295,158	396,005	707,512		100,210	
Washington	29,329	823,082	1,032,077	600,503	1,290,845		229,207	
All other states	650,541	8,606,528	1,528,454	1,505,924	10,768,650		1,393,148	

Labor. It was prepared under the direction of Le Grand Powers, chief statistician, and John Lee Coulter, expert special agent, for agriculture. Further analysis may result in immaterial modifications of the totals.

The production of cherries in 1909 was reported as 4,126,099 bushels, valued at \$7,231,160, while in 1899 it was 2,873,499 bushels, value not stated. There was a decrease in the number of trees of bearing age from 11,943,287 in 1900 to 11,822,044 trees in 1910.

The East North Central division ranks first in the production of cherries in 1909, the amount being 1,410,298 bushels, valued at \$2,362,344; followed by the Pacific, with 813,494 bushels, \$1,500,105; Middle Atlantic, 791,326 bushels, \$1,541,708; West North Central, 515,690 bushels, \$935,537; South Atlantic, 327,706 bushels, \$394,990; Mountain, 147,854 bushels, \$300,485; East South Central, 94,873 bushels, \$143,166; New England, 14,904 bushels, \$38,424, and West South Central, 9,954 bushels, \$14,401.

California leads all states in the cherry crop for 1909, a production of 501,013 bushels, valued at \$951,624, having been reported. Pennsylvania is next with 475,093 bushels, \$909,975; Indiana, 363,993 bushels, \$508,516; Michigan, 338,945 bushels, \$590,829; Ohio, 338,644 bushels, \$657,406; Illinois, 287,376 bushels, \$453,474; New York, 271,597 bushels, \$544,508; Iowa, 260,432 bushels, \$455,022; Oregon, 181,089 bushels, \$269,934; Virginia, 132,671 bushels, \$134,428, and all other states 975,246

bushels, \$1,755,444. (Further details can be drawn from the table IV.)

Plums and Prunes

A preliminary statement of the general results of the thirteenth census relative to the production of plums and prunes in the United States was issued today by Director Durand of the Bureau of the Census, Department of Commerce and Labor. It was prepared under the direction of Le Grand Powers, chief statistician, and John Lee Coulter, expert special agent for agriculture. Further analysis may result in immaterial modifications of the totals.

In 1909 there were produced in the United States 15,480,170 bushels of plums and prunes, valued at \$10,299,495, while in 1899 there were 8,764,032 bushels, value not stated. There was a large falling off in the number of trees of bearing age, those in 1900 numbering 30,780,892, as against 23,445,009 trees in 1910.

Of the nine main geographical divisions into which the census divides the country, the Pacific division alone in 1909 produced 12,097,643 bushels, valued at \$6,912,825, which was over 78 per cent of the entire crop of plums and prunes in the United States. The Middle Atlantic division ranks second with 858,274 bushels, \$928,673; East North Central, 568,383 bushels, \$674,671; West North Central, 499,784 bushels, \$535,374; East South Central, 442,125 bushels, \$314,199; Mountain, 366,056 bushels, \$319,651; West South Central, 327,260 bushels, \$267,703; South Atlan-

tic, 257,912 bushels, \$236,221, and New England 62,733 bushels, \$110,178.

Of the ten principal producing states, California leads all others with a production of 9,317,979 bushels of plums and prunes in 1909, valued at \$5,473,539; followed by Oregon with 1,747,587 bushels, \$838,783; Washington, 1,032,077 bushels, \$600,503, and New York 553,522 bushels, \$519,192. Arkansas, Idaho, Michigan, Missouri, Ohio and Pennsylvania reported a combined production of 1,300,551 bushels, valued at \$1,361,554, while the production in all other states amounted to 1,528,454 bushels, worth \$1,505,924. (Further details are afforded by table V.)

Grapes

A preliminary statement of the general results of the thirteenth census relative to the number of farmers reporting grape vines of bearing age and vines not yet of bearing age, together with the number of vines in each class as of date April 15, 1910, and giving the amount of grapes produced and the value of the crop in 1909 was issued today by Director E. Dana Durand of the Bureau of the Census, Department of Commerce and Labor. The report was prepared under the direction of Le Grand Powers, chief statistician, and John Lee Coulter, expert special agent, for agriculture. Further analysis of the report may result in slight modifications of the totals here presented before final publication, but it is not expected that they will affect materially the figures given herein.

At the census of 1900, taken as of June 1, there were reported 182,227,655 grape vines of bearing age, as against 224,097,719 vines in 1910 (census taken as of April 15), an increase of 41,870,064 vines, or 23 per cent. In 1910 there were 923,396 farmers who reported the growing of grape vines, or 14.5 per cent of the total number of farmers in the United States. No report was received in 1900 showing the number of such growers. The average number of vines per farm is given as 243, but this high average is due largely to the fact that in the Pacific division, which reports considerably more than half of all grape vines in the country, the average per farm amounts to 5,855. The returns of the 1900 census, likewise, did not secure the number of vines under bearing age. In 1910, however, 232,144 farmers (or 3.6 per cent of the total) had 59,927,316 vines not of bearing age, or an average of 258 per farm. The last census shows that in 1909 there were produced in the United States 2,570,936,310 pounds of grapes, having a total value of \$22,025,060. The production at that time was almost double what it was ten years previously, when a crop of 1,300,751,066 pounds was gathered. The returns of the 1900 census secured no information as to value of grapes.

Of the nine main geographical divisions into which the census divides the country, the Pacific division, in 1910 and 1900, reported the largest number of vines of bearing age, 144,800,979 and 91,441,043, respectively. In 1909 a total

TABLE VI—PRODUCTION OF GRAPES IN THE UNITED STATES

By Geographic Divisions and States: Censuses of 1910 and 1900

Division or State	Vines reported April 15, 1910		Products of 1909		Vines June 1, 1900		Products of 1899	
	Farms reporting	Number (thous- sands)	Farms reporting	Number (thous- sands)	Pounds (thous- sands)	Value (thous- sands)	Pounds (thous- sands)	Value (thous- sands)
United States	923,396	224,098	232,144	59,927	2,570,996	\$22,025	182,228	1,300,751
<i>Geographic Divisions</i>								
New England	18,980	208	3,686	92	3,413	108	322	4,324
Middle Atlantic	124,553	38,677	21,600	12,614	293,528	4,915	35,547	299,058
E. North Central	280,450	22,702	49,063	2,824	191,662	3,127	24,789	159,936
W. North Central	204,645	9,633	46,374	1,740	41,089	1,157	12,717	40,735
South Atlantic	140,013	1,895	40,816	513	32,440	911	5,912	34,580
E. South Central	73,765	1,308	26,299	266	8,144	346	3,876	14,818
W. South Central	52,166	3,937	21,430	914	8,266	304	6,090	13,995
Mountain	4,094	936	4,662	537	4,858	129	1,532	5,287
Pacific	24,730	144,801	15,214	40,367	1,984,597	10,997	91,441	728,017
<i>New England</i>								
Maine	2,880	10	510	2	232	7	23	276
New Hampshire	3,184	16	506	3	375	11	55	488
Vermont	2,209	9	491	2	203	6	25	210
Massachusetts	6,003	58	1,204	14	1,133	31	80	1,308
Rhode Island	534	8	119	10	153	10	19	190
Connecticut	4,170	107	856	62	1,318	44	121	1,823
<i>Middle Atlantic</i>								
New York	34,256	31,802	7,250	3,802	253,006	3,962	29,636	247,698
New Jersey	5,368	1,603	1,295	559	6,501	133	1,200	4,235
Pennsylvania	84,929	5,271	16,055	8,253	34,020	851	4,711	47,125
<i>East North Central</i>								
Ohio	81,833	8,321	12,069	454	43,864	857	13,773	79,174
Indiana	73,892	1,049	11,335	149	12,817	288	2,571	18,651
Illinois	75,818	2,170	11,469	288	16,583	426	3,009	20,009
Michigan	41,485	11,014	11,040	1,870	120,696	1,531	5,232	41,530
Wisconsin	7,422	148	3,150	63	701	26	205	571
<i>West North Central</i>								
Minnesota	2,138	62	1,639	36	294	11	138	573
Iowa	51,917	1,983	13,281	416	11,708	330	2,072	7,404
Missouri	75,888	3,027	14,582	486	17,872	489	3,546	13,784
North Dakota	20	98	1	1	...	...	1	2
South Dakota	96	30	1,532	47	145	5	14	16
Nebraska	29,403	1,632	7,078	381	4,752	137	1,183	3,171
Kansas	44,311	2,890	8,164	343	6,318	185	5,763	15,786
<i>South Atlantic</i>								
Delaware	1,309	261	265	99	1,938	44	203	1,375
Maryland	11,718	139	2,328	45	2,152	53	387	1,686
District of Columbia	14	5	1	...	29	1	5	34
Virginia	27,078	425	7,163	136	4,109	156	832	3,609
West Virginia	25,733	284	6,769	76	3,225	94	293	2,192
North Carolina	43,121	411	14,490	120	15,117	336	1,214	12,344
South Carolina	12,239	72	4,431	20	2,017	89	287	3,324
Georgia	15,831	278	4,027	38	2,767	99	2,377	8,330
Florida	2,970	21	1,342	9	1,086	38	214	1,685
<i>East South Central</i>								
Kentucky	26,956	605	7,604	78	3,680	137	1,429	5,134
Tennessee	23,675	339	8,129	76	1,979	85	706	4,355
Alabama	14,863	287	5,482	77	1,723	81	1,527	4,258
Mississippi	8,271	77	5,084	35	761	42	213	1,071
<i>West South Central</i>								
Arkansas	11,247	806	4,851	178	2,594	98	1,178	3,621
Louisiana	1,385	31	803	21	107	6	42	177
Oklahoma (a)	26,039	2,388	8,947	417	3,763	122	3,542	6,111
Texas	13,495	712	6,829	298	1,803	78	1,328	4,086
<i>Mountain</i>								
Montana	13	1	49	1	...	...	4	1
Idaho	907	68	1,281	125	604	19	70	277
Wyoming	12	...	88	1	...	...	...	1
Colorado	1,034	254	940	101	1,038	28	275	586
New Mexico	820	250	1,390	122	425	16	469	1,516
Arizona	508	132	592	85	838	25	325	1,697
Utah	692	204	277	94	1,576	28	312	920
Nevada	108	27	45	8	376	12	76	288
<i>Pacific</i>								
Washington	2,121	322	2,212	372	1,704	51	217	1,195
Oregon	4,816	381	2,840	469	3,207	99	537	5,389
California	17,793	144,098	10,162	39,526	1,979,687	10,847	90,686	721,433

(a) Includes Indian Territory in 1899 and 1900.

of 1,984,597,404 pounds of grapes were gathered, against 728,017,200 pounds in 1899. The value of the crop in 1909 was \$10,997,000. The division ranking next in all items is the Middle Atlantic. In 1910 this division had 38,676,641 vines of bearing age, against 35,547,114 vines in 1900. At the present census 293,527,780 pounds of grapes were produced by this division, valued at \$4,945,342. Ten years ago the yield equaled 299,058,493 pounds, a slight decrease since 1899. The East North Central division, with 22,702,431 vines in bearing age, is third in rank. In 1900 the corresponding number of vines was 24,789,483, a slight falling off thus being shown. The vines of bearing age in 1909 produced 194,661,776 pounds, valued at \$3,127,462, but in 1899 there were gathered 159,936,481 pounds, the increase during the ten years being 34,725,295 pounds. These three divisions reported over 96 per cent of the total product for 1909.

Over 83 per cent of all vines of bearing age in the United States is in three

states, California, New York and Michigan. California had, in 1910, a total of 144,098,000 vines, an increase over 1900 of 53,412,000 vines. The production in 1909 amounted to 1,979,687,000 pounds, valued at \$10,847,000. In 1899 there were produced 721,433,000 pounds. In New York there were, at the present census, 31,802,000 vines of bearing age. The production reported for 1909 was 253,006,000 pounds, as against 247,698,000 pounds in 1899. The value of the crop in 1909 was \$3,962,000. Michigan had 11,014,000 vines of bearing age in 1910. The product in 1909 amounted to 120,696,000 pounds, valued at \$1,531,000. In 1899 a production of 41,530,000 pounds was reported. (Further details can be drawn from table VI.)

Editor Better Fruit:

Enclosed find one dollar for future delivery of "Better Fruit." It's all right. T. B. Morgan, Traverse City, Michigan.

F. E. Meyers & Bro., spray pump manufacturers of Ashland, Ohio, have completed mailing their catalogue No. 51, "Always in Advance," to dealers throughout the country.

ESTIMATED YIELDS AND VALUES, JULY, 1912
OREGON

Variety	Amount 1911	Value	Amount 1912	Value
Apples, boxes	1,100,000	\$1,094,000	2,500,000	\$2,500,000
Pears, boxes	97,000	147,000	100,000	160,000
Peaches, boxes	580,000	290,000	600,000	240,000
Cherries, baskets	4,000,000	240,000	5,000,000	300,000
Plums and prunes, crates	200,000	120,000	250,000	150,000
Dried prunes, pounds	21,000,000	2,510,000	18,000,000	2,000,000
Apricots, boxes	15,000	10,000	20,000	6,000
Grapes, pounds	4,500,000	125,000	4,000,000	140,000
Strawberries, pounds	9,150,000	500,000	10,000,000	550,000
Black and raspberries, pounds	4,000,000	200,000	4,500,000	225,000
Loganberries, pounds	5,000,000	250,000	5,250,000	210,000
Currants, pounds	360,000	26,000	400,000	28,000
Gooseberries, pounds	500,000	24,000	600,000	30,000
Nuts, pounds	275,000	40,000	300,000	45,000

Totals.....\$5,576,000

WASHINGTON

Apples, boxes	2,000,000	\$3,000,000	8,000,000	\$7,000,000
Pears, boxes	350,000	525,000	575,000	750,000
Peaches, boxes	500,000	250,000	1,000,000	500,000
Plums and prunes, boxes	200,000	120,000	225,000	135,000
Cherries, boxes	200,000	200,000	275,000	260,000
Strawberries, crates	300,000	600,000	575,000	900,000
Raspberries, crates	475,000	950,000	550,000	975,000
Grapes, crates	200,000	120,000	225,000	140,000

Totals.....\$5,765,000

IDAHO

Apples, boxes	1,200,000	\$1,500,000	1,500,000	\$1,500,000
Peaches, boxes	96,000	48,000	200,000	100,000
Prunes, fresh, boxes	300,000	330,000	350,000	385,000
Prunes, dried, boxes	600,000	700,000	650,000	750,000

Totals.....\$2,578,000

Field Peas On the State
Experimental Farm

For a number of years field peas have been under trial at the experiment station. More than one hundred varieties have been tried out. During the past season the three most promising varieties have been grown under field conditions. All the varieties have proved very satisfactory. They have yielded from forty to fifty bushels of threshed peas per acre. Field peas may be used in numerous ways. Some farmers pasture the ripened peas off with swine. This is a very satisfactory method, as it saves the trouble of harvesting and threshing. Peas sown with oats make an excellent hay or they may be used for green feed. If oats and peas are left until ripe they may be threshed together. The grain may be ground and fed to live stock. When peas are grown alone the seed is often ground for pigs. Fed with barley it makes an excellent grade of pork. Field peas should be sown as early as possible in the spring. It is best to fall plow the land and fit it very thoroughly next spring. The seeds are sown with a drill at the rate of one and one-half to two and one-half bushels per acre. The drill should be set to sow as deeply as possible. From three to four inches is none too deep. The most important factors of success are thorough fitting of the land and early and deep seeding.—Contributed.

Henry A. Dreer & Co., of Philadelphia, have issued their autumn catalogue for 1912, dealing principally with flowers and plants, such as will beautify the home.

Pacific Northwest Land Products Show

THE Pacific Northwest Land Products Show will be held in Portland, Oregon, under the auspices of the Oregon State Horticultural Society, November 18 to 23 inclusive, and full explanatory literature and premium lists will be sent out in the near future. It is the expanding of the scope and purposes of the Oregon Apple Show, after careful consideration by the board of directors and the officers of the Oregon State Horticultural Society, and a conclusion reached that the interests of those engaged in the many branches of agriculture should be recognized, as well as the interests of the orchardists. Therefore every district in the Pacific Northwest will be invited to arrange for competitive exhibition, collective displays of all orchard and soil products grown in and best adapted to their respective localities. To orchardists, districts, commercial clubs and other exhibitors will be offered attractive cash and other premiums of value as an inducement to exhibit in classes competing for premiums the best of their commercial fruits and products.

The Pacific Northwest Land Products Show will be educational in character and all its purposes, and by collecting in one grand display all that the orchard and soil produce will enable districts and individuals to compare their fruit and other crops with all other sections; to consider the effect of soils and climatic conditions, and thus learn what varieties are best suited to their own locality. Spraying, pruning and other educational demonstrations will be given daily. Another interest that will be benefited in an educational way is the man looking forward to the time when he can get back to the land. In the past the information given him has been confined mostly to the apple and other tree fruits, and it is now proposed to give him the tangible,

indisputable evidence he wants—what each and every district in the Pacific Northwest will produce. This will interest the land seekers and tend to bring settlers to all localities. As the Pacific International Dairy Show Association will hold their exhibition on the same date in this city, it will be an additional attraction, not only to our exhibitors, but to all visitors interested in these particular lines.

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GOLD MEDAL
PARIS EXPOSITION,
8c &c

S/C

4th. September 1912.

Messrs. Hicks-Chatton Engraving Co.
Portland, Oregon, U.S.A.

Gentlemen:

We have in front of us a July 1912 issue of "Better Fruit".

We notice on the front cover an excellently colored illustration of a basket of fruit - and that the cut is copyrighted by yourselves.

The cut is such an excellent one that we think we might be able to use it on one of our Insecticide Catalogues. Please let us know what would be your price for the color blocks for our 1913 Catalogue?

Yours very truly,
Strawsons & Company
By

W. J. Shawson

Apple Exports for Season 1911-12

Mahlon Terhune, Freight and Forwarding Agent, Room D18, Produce Exchange, New York
(Copyright 1912)

-PORTS OF EXPORT.

—PORTS OF IMPORT.

	New York	Boston	Montreal	Portland	Halifax	St. John	Anna- polis	Liver- pool	London	Glasgow	Ham- burg	Man- chester	Various	Total
	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels	Barrels
1911														
July 29	27	.....	.....	.....	.....	.....	.....	.....	.....	27	.....	.....	.....	27
Aug. 5	178	149	.....	.....	.....	.....	.....	149	.....	178	.....	.....	.....	327
" 12	1,423	333	206	.....	.....	.....	.....	1,034	206	722	.....	.....	.....	1,962
" 19	4,851	150	800	.....	.....	.....	.....	150	.....	5,651	.....	.....	.....	5,801
" 26	3,111	1,516	672	.....	.....	.....	.....	771	.....	4,528	.....	.....	.....	5,299
Sept. 2	4,103	884	.....	.....	21,957	.....	.....	1,657	16,686	8,225	.....	.....	.....	376
" 9	6,636	.....	4,156	.....	32,456	.....	.....	5,873	30,095	7,180	.....	.....	.....	100
" 16	9,812	2,093	13,186	.....	63,251	.....	.....	30,280	34,320	13,857	10,286	.....	.....	43,248
" 23	20,378	4,338	16,967	.....	24,084	.....	.....	15,970	1,797	44,587	.....	.....	.....	88,345
" 30	20,104	6,794	24,030	.....	63,611	.....	9,074	35,986	29,590	36,269	9,789	.....	12,046	74,811
Oct. 7	22,342	5,875	27,955	.....	66,312	.....	.....	36,576	35,992	40,376	1,209	.....	2,905	114,539
" 14	28,948	28,677	35,876	.....	73,651	.....	8,500	64,032	37,881	52,235	2,668	.....	8,331	122,484
" 21	38,138	33,059	35,607	.....	52,902	.....	.....	63,590	38,789	34,477	7,069	8,981	6,820	159,726
" 28	41,829	31,530	40,703	.....	52,354	.....	.....	54,898	1,939	37,904	50,094	10,000	11,581	166,416
Nov. 4	35,840	29,174	24,195	.....	37,961	.....	.....	32,688	29,906	35,208	14,282	5,547	9,539	127,170
" 11	30,340	41,024	14,927	.....	57,128	.....	.....	46,881	33,395	13,915	36,143	7,665	5,420	143,419
" 18	20,790	31,439	10,060	25,338	51,867	851	.....	36,343	35,759	25,021	35,906	4,516	2,800	140,345
" 25	20,100	42,826	15,738	.....	15,913	733	.....	61,965	5,885	10,483	11,528	.....	5,449	95,310
Dec. 2	17,100	31,680	5,873	38,394	59,137	3,003	.....	62,676	37,751	23,482	7,937	11,228	12,113	155,187
" 9	18,506	27,533	.....	14,392	56,055	3,432	.....	39,176	41,062	37,917	261	1,511	2,991	122,918
" 16	5,835	2,200	.....	6,541	42,176	678	.....	9,067	1,506	19,858	18,663	3,701	4,635	57,430
" 23	6,640	22,849	.....	16,697	11,297	1,400	.....	29,877	15,728	4,586	306	.....	8,386	58,883
" 30	14,122	9,977	.....	14,144	55,159	4,320	.....	37,421	49,295	1,996	1,916	167	6,927	97,722
1912														
Jan. 6	13,993	5,215	.....	17,527	55,517	1,293	.....	28,790	34,120	13,955	13,012	3,210	458	93,545
" 13	7,909	3,486	.....	8,201	27,779	609	.....	19,971	20,064	4,881	2,207	.....	861	47,984
" 20	15,634	14,089	.....	10,968	18,242	.....	.....	28,056	9,014	12,680	.....	8,988	195	58,933
" 27	24,850	2,849	.....	9,368	50,842	505	.....	19,307	35,950	9,083	18,773	4,951	350	88,414
Feb. 3	19,901	6,194	.....	10,787	25,344	678	.....	27,109	15,833	10,165	3,267	5,458	1,072	62,904
" 10	13,472	10,419	.....	14,054	45,860	3,142	.....	35,275	41,963	6,392	2,654	.....	663	86,947
" 17	9,803	4,713	.....	8,707	34,015	1,547	.....	25,327	9,682	2,392	11,957	8,468	959	58,785
" 24	13,429	11,066	.....	4,342	31,024	1,303	.....	23,611	28,250	.....	8,428	.....	875	61,164
Mar. 2	13,522	9,400	.....	10,479	42,392	1,012	.....	32,527	33,901	.....	8,576	346	1,455	76,805
" 9	15,464	9,990	.....	3,185	5,890	318	.....	12,588	5,805	1,952	1,952	4,681	3,417	34,847
" 16	12,411	1,965	.....	2,362	30,581	1,036	.....	6,212	31,790	6,600	2,411	.....	1,342	48,355
" 23	5,092	4,860	.....	8,188	4,472	2,406	.....	4,392	820	4,059	201	3,465	2,081	25,018
" 30	3,319	3,123	.....	.....	7,520	1,129	.....	4,947	8,186	629	1,129	.....	200	15,091
April 6	1,091	3,763	.....	7,144	2,090	1,217	.....	11,162	615	1,858	.....	.....	1,670	15,305
" 13	160	1,373	.....	2,784	.....	.....	.....	4,175	142	.....	.....	.....	.....	4,317
" 20	440	1,080	.....	.....	1,973	.....	.....	1,753	1,740	.....	.....	.....	.....	3,493
" 27	.....	.....	.....	.....	.....	125	.....	.....	.....	125	.....	.....	.....	125
Totals	551,663	447,685	270,951	236,602	1,222,815	30,737	17,574	962,262	756,056	537,306	283,065	92,883	136,455	2,768,027
* Boxes	456,278	130,757	.....	.....	.....	.....	.....	189,334	226,094	44,242	70,634	25,439	31,092	587,035

* Note—These figures are included in the above shipments, three boxes to barrel.

COMPARISONS OF SEASONS 1880-81 TO 1911-12

—Ports of Export—

—Ports of Import-

	New York	Boston	Montreal	Portland	Maine	Halifax	Philadelphia	Various	Annapolis	Liverpool	London	Glasgow	Hamburg	Various	Total
1880-81	599,200	510,300	145,276	39,908	24,250	9,972				839,444	177,936	216,391		95,036	1,328,806
1881-82	75,889	65,093	56,433	6,497	13,805				21,535	133,784	46,117	59,266		55	239,252
1882-83	169,570	101,409	64,190	16,890	18,542	3,900			19,893	253,432	46,975	81,269		13,318	395,594
1883-84	53,048	7,145	7,445	9,811	3,758	325				46,661	4,843	29,685		343	81,532
1884-85	256,314	307,130	84,487	71,460	41,207				8,612	491,898	123,081	137,631		16,590	769,210
1885-86	466,203	221,724	68,716	87,301	37,982				3,161	537,695	147,102	176,445		24,031	885,273
1886-87	175,595	303,479	106,713	100,569	94,606				26,965	468,553	187,840	138,756		12,775	807,924
1887-88	275,696	163,916	93,058	25,215	32,652				17,884	346,557	104,072	139,517		18,275	608,421
1888-89	474,337	382,199	291,307	145,825	94,691	860			18,190	790,502	279,374	272,068		64,465	1,407,162
1889-90	169,557	132,589	102,526	122,433	53,627				37,030	118,850	128,248	116,449		14,115	677,762
1890-91	76,503	23,123	182,095	80,365	89,190					252,348	116,705	80,772		1,260	451,285
1891-92	537,247	339,964	320,457	163,145	87,379		550	1,624		917,535	224,356	282,553		25,892	1,450,336
1892-93	218,037	204,138	429,243	235,395	116,725					798,291	174,405	220,790		10,052	1,203,538
1893-94	29,396	4,796	56,255	49,344	35,058					101,205	32,581	38,524		2,530	174,841
1894-95	221,398	523,123	273,353	155,878	264,410					853,198	388,535	173,312		23,110	1,438,155
1895-96	230,705	84,771	128,027	141,955	165,797					410,596	196,184	127,942		16,533	751,255
Boxes	13,610		1,861							11,342	2,458	1,771			15,471
1896-97	570,327	1,015,029	700,274	221,350	409,733		3,133			1,581,560	716,771	411,575	117,105	92,835	2,919,846
1897-98	361,894	176,322	163,313	126,261	82,208		3,943	55		490,138	198,281	123,828	88,780	12,969	913,996
1898-99	158,213	237,395	404,573	143,892	277,014					689,036	271,342	180,336	22,861	57,512	1,221,087
Boxes	176,107			4,529	1,349					81,484	87,188	9,226	1,531	2,556	181,985
1899-1900	306,889	177,660	285,528	148,892	360,799				13,400	644,857	319,869	211,555	72,150	44,690	1,293,121
Boxes	149,515									58,922	70,724	13,118	4,826	1,925	149,515
1900-01	240,635	409,979	249,219	225,396	200,000				20,801	814,100	251,322	225,061	26,728	28,919	1,346,030
Boxes	203,333									60,776	111,307	22,925	1,325	7,000	203,333
1901-02	154,223	143,851	122,465	100,419	271,230					408,655	229,808	129,312	18,296	6,077	792

Germ On the Farm

"Teach your pupils at school to try to inculcate the doctrine at home that dirt means filth and filth means abnormal kinds of germs," said Professor T. D. Beckwith, head of the bacteriology department at the Oregon Agri-

cultural College, in an address before the teachers in the summer session classes. Germs which cause milk to sour, bacteria which dispose of filth and aid in making fertile soil, and microbes which cause disease were shown through a powerful microscope magnifying 1,400,000 times, and the

professor explained their action on food and soil. The bacteria which cause the souring of milk were shown, 15,000 of which placed in a line make just an inch. "Germs are alive. It is safe to say the ordinary human being voids thirty-three million million germs a day, most of them by way of the

feces. Since a cow is so much larger, how much greater a number of germs it throws off each day. What do you think of the farmer who keeps his cow in a dark, muddy, wet stable, dripping with manure, or in summer, in the dry season, allows her to accumulate an armor of manure? Every bit of that filth is full of germs which, if they get into the milk, produce abnormal changes, some of them breeding disease. The farmer sits down under such a cow, without cleaning it, and milks into a wide-mouthed pail into which at every motion and every breath of air there drop particles containing germs. Each germ makes two every twenty minutes—that is, they multiply to eight times their number every hour at ordinary temperature. You can see what it means to allow the milk to cool slowly instead of cooling it artificially at once. If children drink milk from untested cows which have bovine tuberculosis the germs do not pass out, but remain in the body and by slow change, in twenty or twenty-five years, become human tuberculosis. All dairy animals should be tested so that we may know that there is no tuberculosis. You teachers can do a great deal by teaching your pupils the importance of these things."—Contributed.

Top-Grafting English Walnuts

I have been asked several times to say something about top-grafting English walnuts on the American black trees. I have been working at grafting walnuts for five years, with some success. I use the system known as the Payne method with part of my own methods. I find that the condition in which the sap is has as much to do with the luck you have in making a stand of your scions as anything else. If a tree bleeds at all the scions will not start. At least that is my experience. I have found that the best time to graft is in May and June, after the first flow of sap is over and the leaves are well out. The work must be done very carefully and the scions must fit exactly to the notch in the stock. Then wax perfectly so no disease or water can get in; and it is a good plan to wax several times in order to keep the cavity closed up. The scions must be of last spring's growth and in a dormant state. If the buds have made a start to grow they will not grow, so you must cut them in February and place them in cold storage until you want to use them. Be careful that they don't mould or get too dry. The Franquette is the best nut for Western Oregon, in my judgment, as they are late in blooming and likely to get a warm and dry time to pollenize, and that is the key to a crop.

I grafted a black walnut tree for R. A. Burkhart of Albany that bore the second year from grafting and has borne every year since. The grafted part of the tree is five years old. This is its third crop and a big one. Last spring I grafted and set 1,226 scions and

Some California Fruit Production Figures				
(Compiled by California Fruit Grower, 1911 "Annual Edition")				
FRESH DECIDUOUS FRUIT SHIPMENTS				
(Does not include apples)				
	1908	1909	1910	1911
Total cars	10,716	13,117	11,936	12,539
CITRUS FRUIT SHIPMENTS				
	1907-08	1908-09	1909-10	1910-11
Cars	27,541	34,320	28,317	39,630
Oranges	5,185	6,196	4,782	6,764
Lemons	32,729	40,516	33,099	46,394
Total citrus fruit shipments	32,729	40,516	33,099	46,394
CURED FRUIT OUTPUT				
	1908	1909	1910	1911
Tons	19,000	14,000	15,250	11,000
Apricots	23,600	23,600	25,000	14,000
Peaches	28,500	75,000	40,000	95,000
Prunes	65,000	70,000	62,500	65,000
Raisins	9,250	9,500	8,525	12,750
Various other fruits	114,750	188,500	151,275	197,750
Total cured fruit output	114,750	188,500	151,275	197,750
CANNED FRUIT AND VEGETABLE PACK				
	1909	1910	1911	
Cases	563,660	544,530	708,500	
Apricots—2½s and 3s	401,800	553,000	582,200	
Peaches, free—2½s and 3s	779,725	1,233,200	1,210,525	
Peaches, cling—2½s and 3s	787,644	912,212	1,028,671	
Other fruits—2½s and 3s	514,172	765,607	652,751	
Gallon fruits	410,965	617,275	687,065	
Asparagus	672,260	1,350,310	1,515,450	
Tomatoes	159,495	283,060	314,140	
Other vegetables	4,289,721	6,259,194	6,699,305	
Total pack	4,289,721	6,259,194	6,699,305	

Exports of Box Apples from New York for Season of 1911-12

Mahlon Terhune, Freight Broker and Forwarding Agent, Produce Exchange, New York
(Copyright 1912)

	Liverpool	London	Glasgow	Hamburg	Bremen	chester	Various	Total
	Boxes	Boxes	Boxes	Boxes	Boxes	Boxes	Boxes	Boxes
1911								
Sept. 2.....	656	776	....	....	....	....	....	1,432
" 9.....	60	1,104	....	....	....	....	300	1,464
" 16.....	1,896	1,319	698	....	....	....	....	3,913
" 23.....	1,537	2,972	1,130	....	....	....	....	5,639
" 30.....	....	6,584	781	....	....	....	....	7,365
Oct. 7.....	....	2,326	....	725	....	....	....	3,051
" 14.....	640	7,109	630	2,855	....	....	....	11,234
" 21.....	4,884	9,446	680	4,145	....	....	....	19,155
" 28.....	7,999	2,920	1,890	5,886	....	....	1,904	20,599
Nov. 4.....	5,903	4,450	780	6,014	....	....	....	17,147
" 11.....	6,417	6,941	371	7,708	200	....	1,920	23,557
" 18.....	2,624	4,281	303	4,381	....	....	3,240	14,832
" 25.....	9,004	5,225	....	2,096	1,478	....	177	17,980
Dec. 2.....	7,989	3,666	2,109	1,290	....	....	2,536	17,890
" 9.....	6,689	13,186	....	692	300	....	3,729	24,596
" 16.....	4,074	3,869	915	637	....	....	....	9,495
" 23.....	2,771	7,593	640	707	....	....	1,242	12,953
" 30.....	7,516	10,195	....	1,875	....	....	1,270	20,856
1912								
Jan. 6.....	4,690	5,391	3,601	2,294	....	....	....	15,976
" 13.....	2,379	4,640	....	4,112	2,484	....	100	13,715
" 20.....	6,776	5,964	640	....	....	....	....	13,380
" 27.....	5,617	3,878	1,768	3,238	....	....	632	15,133
Feb. 3.....	7,849	1,553	1,218	1,922	....	....	760	16,302
" 10.....	6,202	2,184	150	2,608	1,534	....	....	12,678
" 17.....	8,824	6,096	....	....	1,838	....	....	16,758
" 24.....	7,751	7,503	....	2,616	629	2,000	....	20,502
Mar. 2.....	8,875	10,821	....	2,769	....	....	1,300	23,765
" 9.....	8,110	4,471	5,008	509	1,268	....	....	19,369
" 16.....	11,367	3,680	7,849	4,670	....	530	1,100	29,196
" 23.....	3,709	2,460	6,240	604	751	....	....	13,764
" 30.....	5,410	....	....	3,278	....	....	600	9,288
April 6.....	1,294	680	....	....	....	....	....	1,974
" 20.....	1,320	....	....	....	....	....	....	1,320
Totals.....	160,832	153,289	37,701	70,634	10,482	2,530	20,810	456,278
From Boston	28,502	72,805	6,541	....	....	22,909	....	130,757

COMPARISONS WITH OTHER SEASONS

	Liverpool	London	Glasgow	Hamburg	Bremen	Hull	Various	Total
1899-1900	58,992	70,724	13,118	1,925	....	4,826	....	149,515
1900-01	61,602	107,752	22,415	1,325	....	7,000	....	200,094
1901-02	109,715	153,653	20,449	2,929	....	9,681	....	296,427
1902-03	69,020	126,730	11,722	488	....	4,629	....	212,587
1903-04	107,260	188,643	24,302	23,486	....	19,814	25,470	388,975
1904-05	17,154	32,254	24,481	....	....	....	13,420	87,321
1905-06	131,172	196,516	24,067	14,938	13,025	20,657	15,371	415,740
1906-07	87,067	128,024	10,307	3,878	....	....	22,735	252,011
1907-08	98,609	151,363	11,958	2,208	....	....	21,068	285,206
1908-09	208,383	243,969	41,708	3,263	17,858	3,198	2,413	520,792
1909-10	170,139	249,990	48,054	22,516	21,883	....	18,152	530,734
1910-11	361,268	501,961	94,465	77,981	18,386	....	52,546	1,106,610
1911-12	189,334	226,094	44,242	70,634	10,482	....	46,249	587,035

seventy-two per cent made good unions and good growth. I grafted a tree in Albany which was twenty years old; I put eighteen scions on and fifteen of them made a good union and a fine growth. This tree had five perfect nuts on it one year from the time it was grafted. If anyone can beat that I would like to hear from them.—W. A. Bodine, Albany, Oregon.

The Union Blind & Ladder Company, of Oakland, California, are just getting out an interesting and instructive booklet on pruning. It is full of practical suggestions as to the proper and most efficient methods of pruning various kinds of fruit trees and should be much appreciated by the fruit growers and fruit growers' associations of the Pacific Coast.

Editor Better Fruit:

I don't see how anyone that grows fruit can get along without "Better Fruit." Yours truly, W. E. Pollinger, Conio, Montana.



Session of fruit growers at the Chautauqua Meeting, Hood River, August 22 to 25, 1912

Photo by Slocum's Book and Art Store

Hood River Fruit Growers' Chautauqua

By A. Sutton, Hood River, Oregon

HOOD RIVER VALLEY, famous the world over for its beautiful red Spitzenbergs, its clear, waxy looking, juicy Ortleys, its long-keeping Yellow Newtowns and other well-known varieties of apples, "famous for flavor," once more makes it bow before the footlights of the public in a manner calculated to bring it further renown. Probably for the first time in the history of the country, and certainly the first time in the history of the Northwest, has any community held a Horticultural Chautauqua. To Hood River Valley belongs this honor. The idea originated with Mr. George I. Sargent of Hood River Valley—"Daddy George," as he has since become known by his familiars—one of the best known practical horticultural experts in Oregon, whose advice on matters concerning soils and general horticultural subjects is sought from all parts of the United States.

Much raising of eyebrows followed the suggestion of "Daddy George" made in the latter part of June that all of Hood River Valley hold an Horticultural Chautauqua some time during August at the "Lava Beds," where we could all get together, forget the daily duties of the orchard and have a full and free interchange of ideas on all matters pertaining to the main industry of the valley, and the whole world knows what that is. It takes more than the raising of eyebrows to daunt "Daddy George," for it was not long before he had instilled much of his own enthusiasm into a goodly number of the prominent growers with the result that committees such as executive, financial, entertainment, grounds, and by no means the least, although mentioned last, the commissary, were appointed, and on August 22, 23 and 24 the first Hood River Horticultural

Chautauqua became a reality and an unqualified success; in fact so much of a success that a permanent organization was effected on August 24.

No doubt the first thought passing through the mind of the reader is of dry, tedious lectures on horticultural subjects for breakfast, lunch and dinner, with the night slumbers disturbed by technical expressions and hard-fought battles with the aphids, red spider, San Jose scale, codling moth, dry rot, fungus and other enemies of the much sought after perfect apple, as was the first thought of many of the locals, but such was by no means the case. The entertainment committee, which was a committee in fact as well as in name, provided not alone food for the brain but amusement as well, with success crowning its efforts that was most complete.

The greater part of each day was given up to different forms of amusement as best suited the bent of each

individual or family gathering, so to speak, including trout fishing, mountain climbing, the more peaceful rambles through the woods or along the banks of Hood River, rushing milky white from its glacial source on Mt. Hood to the quiet-flowing Columbia, or lounging 'round on the ground made soft by the centuries of fallen pine and fir needles, dreaming of the fortunes they expect to enjoy when the young orchard comes into full bearing with its loads of shiny red and yellow apples. In the afternoons interesting and instructive talks were made (a list of the speakers is given in the program at end of this article). These addresses were not so long, however, as to turn the edge of keen enjoyment. In the evening dull care was forgotten and the gathering, some five hundred strong, settled itself on the benches, placed in amphitheatre form, for a short hour and a half of real enjoyment that would send it to a



Photo by Slocum's Book and Art Store
Mount Hood, 11,125 feet high, eternally covered with snow
Taken from the lava beds at the base of the mountain, just at the edge of the Chautauqua grounds



Photo by Slocum's Book and Art Store

Chautauqua Camp Grounds at Hood River, showing some of the big forest trees

quiet night's rest peaceful and contented with themselves and the world.

The first evening was given to music, real music, on a real stage, beautifully set between a giant fir and pine placed as if intended for that particular use by the Creator, with vine maple forming the wings, a most picturesque effect with the electric lights and moonlight showing through them just strong enough to outline them, but not sufficient to distract the eye from the stage. The music, both vocal and instrumental, was rendered by a number of well-known professionals and a number of near-professionals, all local talent—talent that any community could be proud of. The second evening's prize from the grab-box of fun was a vaudeville entertainment, likewise by local talent. Much of it, to be sure, was farcical, but worse has been seen on the Orpheum stage, for which the public has handed over its hard-earned shekels. The third evening produced a "nigger" minstrel show, the regulation thing with the thread-bare jokes, but enough local hits and variety of costuming to make it genuinely funny. Yes, indeed, everybody had a good time and, like "Helen's Babies," wanted to "shee wheels go 'round some more."

The site selected for the outing, "The Lava Beds," was a happy one. The name implies a mass of lava of indiscriminate shapes, but a glance at the accompanying photographs will disprove this idea. Instead it is a beautiful grove of firs and pine with vine maple, hazel and willow growing rather sparsely through the grove, which covers an area of perhaps ten or fifteen acres, somewhat lower than the elevation of the surrounding country, which is about 1,700 feet. In the center of this grove the trees form a natural amphitheatre, advantage of which was taken by the grounds committee to build the stage and seatings. The ground gently sloping, perhaps not so much so as an architect would have it, but sufficient to give a reasonably clear

view of the stage from all parts of the amphitheatre. Around this amphitheatre, at a distance perhaps of two hundred or more feet, tents were arranged in the shape of a horseshoe, at the base or ends of which was the commissary department, presided over by the ladies of the upper valley, who took excellent care of the inner man. Water in abundance, ice cold and crystal clear, has been piped to the grounds from a magnificent spring having its source in the lava beds and flowing about 4,000,000 gallons daily.

To be sure the lava beds are there, and naturally they should be, since the location is at the base of Mt. Hood, that dignified, graceful monument of God's handiwork challenging the admiration of all people from all countries. Lava beds, lava mountains would be a more correct way to express it. Great masses of lava, mountains high as compared with the Alleghenny and Adirondack Mountains, but just hills to the "wild and woolly Westerner" accustomed to

a view of such peaks as Mt. Hood, Mt. Adams, Mt. St. Helens, and on clear mornings Mt. Rainier (or Tacoma, as you prefer to call it), as an appetizer for breakfast. Much has been written and more said about the wonderful scenery of Yosemite Park in California, Yellowstone Park, the Grand Canyon of the Colorado, the Selkirk Mountains on the line of the Canadian Pacific Railroad and numerous other places, including those in Europe, noted for their grandeur and beauty of nature, but Hood River Valley, with its particular form of scenery, is second to none of these. To appreciate it is to see it, to see it one cannot help appreciate it. Situated as it is in the heart of the Cascade Mountains, surrounded by mountains, with the giants previously named perpetually snow-capped and in view at different points in the valley almost any time in the year, is most assuredly awe inspiring and makes one wonder at the masterly hand that shaped it all. I understand there is an organization in this country with a very general membership which has for its slogan "See America First," a truly wise thing to do, for there is much to see, and not the least of these is Hood River Valley, well worthy to be included among the scenic beauties of this great America of ours.

The following program was carried out to the letter, and it is needless to say it was hugely enjoyed by all, both participants and auditors. So much of a success was this gathering that the fear naturally follows that future gatherings may not be up to the high standard thus established. The program follows:

The Chautauqua Program

THURSDAY AFTERNOON

Opening address, Leslie Butler, president of Hood River Horticultural Chautauqua.

Response, A. P. Bateham, president of State Horticultural Society.

Horticultural address, "Orchard Diseases and Their Remedies," Professor H. S. Jackson, of Corvallis.

Horticultural address, "Soil Management," Professor H. D. Scudder.



Photo by Slocum's Book and Art Store

A few of the many tents of fruit growers camping at the Chautauqua, Hood River.

THURSDAY EVENING

Piano solo, "Rustle of Spring" (Sinding), Mr. Hoerlein.
 Vocal solo, "My Cavalier" (Nathan), Mrs. P. S. Davidson.
 Vocal solo, "Bid Me Love" (D'Auvergne Barnard), Mrs. Charles H. Henney.
 Schubert trio, "I Hear You Calling Me" (Chas. Marshall), Mr. Osgood, soloist; Mr. Chandler, violin; Mr. Hoerlein, piano.
 Vocal solo, "Villanelle" (Dell' Aequa), Mrs. Frank E. Deem.
 Vocal solo, "The Old Superb" (C. Villiers Stanford), Mr. Otto Wedemeyer.
 Cornet solo, Mr. John Boyer of Portland.
 Vocal solo, "My Heart, Thy Own Sweet Voice" (Saint Saens), (From the opera "Samson and Delilah"), Mrs. C. H. Sletton.
 Vocal solo, "The Postilion" (Molloy), Mr. J. Adrian Epping.
 Part song, (a) "Snow" (Sir Edward Elgar), (b) "Fly, Singing Bird, Fly." Vocalists, Mrs. Henney, Mrs. Davidson, Mrs. Deem; violins, Mr. Root, Mr. Chandler, Mr. Wuest, Mr. Gilbert; piano, Miss Eva Brock; accompanists, Miss Eva Brock, Mrs. Wilmer Seig, Mrs. Albert Sutton.

FRIDAY AFTERNOON

Horticultural address, "Pollinization and General Orchard Problems," Professor E. J. Kraus of Corvallis.

FRIDAY EVENING—VAUDEVILLE NIGHT

Upper Valley Harmony Four.
 Miss Constance Henderson, illuminated club swinging.
 Clarke and Gilbert, presenting their famous comedy creation, "Rudolph and Becky Klein."
 Miss Dorothy Epping, in her original interpretation, "Dance of the Wood Nymph."
 A few happy moments with Joe D. Thomison, presenting "How to Make an Apple Pie."
 The Arens Brothers, late of New York, in their laughable musical skit, "The Darktown Troubadours."

The king of entertainers, A. W. Rahles, in his inimitable Hebrew comedy delineations.

The Gypsy Strollers, presented by J. Adrian Epping and company. An original operative grouping arranged especially for this occasion.

SATURDAY AFTERNOON

Horticultural address, "The Relation of the Agricultural College to the Farmer," Dr. W. J. Kerr, president Oregon Agricultural College.

Horticultural address, "Diversified Farming as Applicable to Hood River Orchards," Dr. James Withycombe, director Oregon Experiment Station.

SATURDAY EVENING

The Whangdoodle Minstrels. W. E. King, interlocutor. Ends: Mrs. P. S. Davidson, Mrs. Charles H. Henney, Arthur Clarke, Captain McCan, Mrs. McCan, Miss Constance Henderson, Wilmer Sieg, Charles N. Clarke, C. K. Osgood, Calvin Skinner, Miss Eva Brock. Opening chorus, "I Want to Be Down Home in Dixie;" Mammy song, Mrs. Henney; Plantation song, Mr. Sieg; song, Mr. Clarke; quartette, Mrs. Davidson, Mrs. Henney, Miss Brock, Miss Henderson; song, "Mammy's Shufflin' Dance," Captain McCan; song, Mrs. Davidson; song, Mr. Osgood; closing chorus, Southern Melodies.

BURLESQUE OLIO

Gigantus—Infantus, the Hercules Brothers, direct from the Folies de Bergere, Paris, presenting feats of strength unsurpassed in the annals of the vaudeville stage.

The Sensation of Seventeen Continents, Colonel Sureshot, late of His Majesty's Dragoons, assisted by Dopy Dick. Colonel Sureshot's marvelous rifle shooting has astounded the crowned heads of all Europe and Africa, including the Bull Moose, Crazy Bill and Gene Bush.

The Great Hockinheimer, the wizard of mystery and magic.

Summer Pruning—Importance and Advantage

By C. F. Bley, Fruit Tree Specialist, New York

THE opponents of summer pruning proceed upon the false hypothesis that to check growth is to injure a plant or tree. Because an insect or a mechanical injury checks the growth of a young, or even of a mature tree, it does not follow that a check from summer pruning represents an injury. The check imparted to a tree by summer pruning is only temporary and neither devitalizing nor injurious, provided the operation is performed judiciously and with caution and at the opportune time—the period of bud formation. At this juncture the lessened leaf area causes a cessation of wood growth. In her effort to restore the disturbed balance nature somehow produces a larger proportion of fruit buds. In the mean-

time she reorganizes her forces, and with renewed and seemingly increased energy restores the capacity of the tree to elaborate and make available the crude plant food carried from the root system through the sap wood to the leaves.

To the extent that summer pruning is practiced on young fruit trees, which are thus thrown into premature bearing, it may or may not prove an injury, according to the viewpoint of the owner of the trees. Personally the writer believes it a serious mistake to permit or encourage early fruiting—before the tree has attained a commercial-bearing size and become thoroughly established in the soil—especially apples. But applied to trees of good bearing size, six to ten years old—according to variety—the practice of summer pruning is a commendable and growing practice.

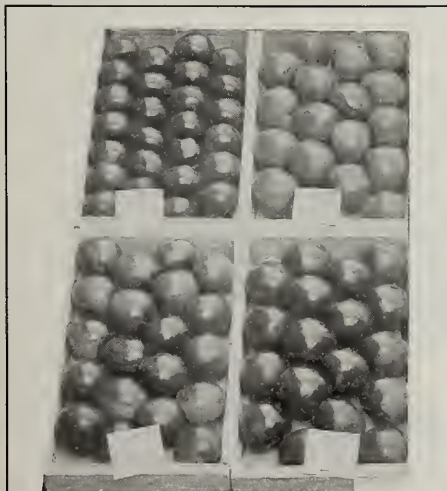
Among the special and specific advantages may be cited: (1) It encourages next season's fruit; (2) the life processes of the tree are active and in the best possible position to heal over the wound made by cutting—at least in part, and before severe freezing might injure the delicate cambium layer; (3) the exact condition of the branches and twigs as to health or disease is more readily discernible by the absence or condition of foliage. While a mature tree cannot be neutral or stand still—it must grow or die—yet growth in mature trees is merely incidental and must be controlled by cutting back or repressive pruning and by thinning. The writer, far from agreeing with many that pruning at any and all sea-

sons of the year is devitalizing, believes that judicious pruning is invigorating and imparts new energy to a tree. True, in summer pruning there is a temporary check, but it is only temporary. Many decrepit, old and dying trees have been rejuvenated by even severe pruning.

Soil Humus and Nitrogen

The State Experiment Station at Pullman has just issued Bulletin No. 105, entitled "The Nitrogen and Humus Problems in Dry Farming." This bulletin gives the results of a series of analyses of soils from different parts of Eastern Washington, the samples being taken so as to show the effect of summer fallowing upon the organic portion of the soil. While the data obtained deal with soils in the wheat belt of Eastern Washington the discussions of the general principles of the relation of the humus of the soil to its moisture-holding capacity and fertility are applicable to all cultivated soils everywhere, and every farmer will be interested in the results obtained in the investigation. Copies of the bulletin can be obtained free of charge by writing to the director of the Experiment Station, Pullman, Washington.

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Upper left, 104 pack; upper right, 72 pack
 Lower left, 80 pack; lower right, 72 pack



Sincerely Yours,
 J. P. Saker,
 Secy. Am. Pomol. Society
 1912

Selected to the secretaryship of the American Pomological Society to fill the vacancy caused by the death of the highly esteemed Professor Craig

If I Bought a Car

By R. E. Olds, Designer

Here are some things which I'd require if I bought a car. I've learned their need by building 60,000 cars.

I could save, I judge, \$200 per car by building Reo the Fifth without them. But you might lose three times that by the lack.

Economy

I would want big tires, because of their immense economy.

On October 1 we added 22 per cent to the tire size on Reo the Fifth, though it was always over-tired. Tire makers say that 22 per cent will add 65 per cent to the average tire mileage.

I would want lightness combined with strength. That means costly drop forgings. In Reo the Fifth we use 190.

I would want bearings that endure. That means roller bearings which cost five times as much as common ball bearings. In Reo the Fifth we use 15 roller bearings, 11 of them Timken, 4 Hyatt High Duty.

I require my springs to stand, by test, 100,000 vibrations.

I test my gears in a crushing machine of 50 tons capacity.

Each engine is tested 48 hours—28 hours in the chassis.

I limit my output to 50 cars daily, so the men are never rushed.

Safety

I use chrome nickel steel for the axles, vanadium steel for connections, manganese steel in the crankshaft. And each lot of steel is analyzed twice to make sure of the needed strength.

Every driving part is built sufficient for a 45-horsepower engine, which leaves big margins of safety. I use 14-inch brake drums for quick, sure control.

The various parts of this car get a thousand inspections, so errors and weaknesses can't creep in.

Comfort

I use in this car my ideal center control, so all the gear shifting is done by moving a handle only three inches in each of four directions.

The driver sits on the left-hand side, close to the cars he passes.

I doubly heat my carburetor to deal with low-grade gasoline. I use a \$75 magneto, on which you can start the car.

I use wide, long springs with seven leaves in them. And I use deep upholstering of genuine leather filled with the best curled hair.

I finish the body with 17 coats. I use electric side lights, flush with the dash.

Comfort and beauty mean much in a car, and I spend a great deal to secure it.

My Own Car

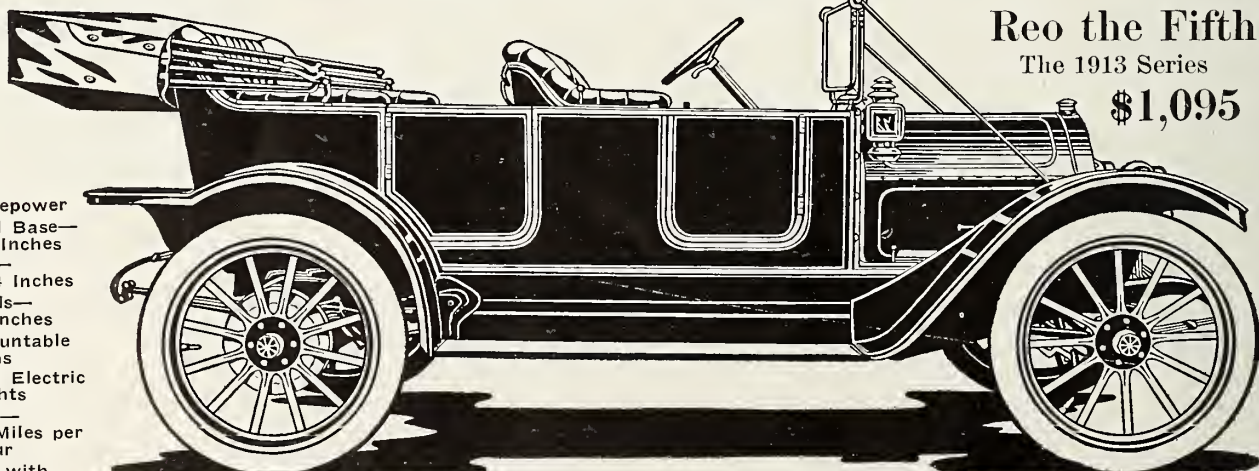
would need to be built in this way, else I would not buy it. So I build in this way for those who buy from me.

I could easily save at least \$200 by skimping on things like these. But men in time would lose their faith in me.

So I cut my profits down to the lowest minimum, and sell a car such as I describe for \$1,095.

Write for our fall catalog and the name of our nearest dealer.

R. M. Owen & Co. General Sales Agents for **Reo Motor Car Co., Lansing, Mich.**
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Top and windshield not included in price. We equip this car with mohair top, side curtains and slip cover, windshield, gas tank for headlights, speedometer and self-starter—all for \$100 extra

[113]

Why Some Arsenates of Lead Burn the Foliage

Foliage burns are caused principally by water soluble or uncombined arsenic usually found in excess in an Acid Arsenate of Lead. In the manufacture of this material more arsenic is forced into the mixture than can be properly combined, resulting in the product being very coarse-grained and containing an excess amount of arsenic not thoroughly combined.

When sprayed on the foliage, it does not cover the surfaces evenly and when exposed to the atmosphere it disintegrates and gives off free arsenic which burns the foliage.

Sherwin-Williams New Process or Neutral is different from the Acid Arsenate of Lead in that all the arsenic it contains is thoroughly combined with the lead. It is very fluffy and finely divided, which makes it light in gravity, and it stays longer in suspension

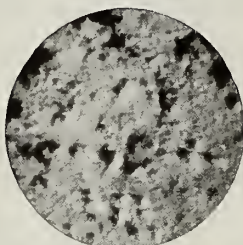


Fig. 1

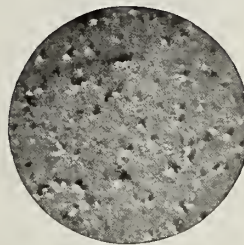


Fig. 2

A comparison of the Acid and the Neutral (S-W) Arsenates of Lead. Figure 1 shows the coarse character of the Acid Brand which disintegrates easily and gives off free arsenic, causing foliage burns. Figure 2 reproduces the Neutral (S-W) Brand which is finely composed, spreads over the foliage evenly and does not disintegrate and burn the foliage.

than the coarser, acid-material. On account of its fineness it has greater covering capacity and adhesiveness. Because it is thoroughly combined with lead, S-W Brand does not change its composition on exposure to the weather, and so will not burn the most delicate foliage. These exceptional qualities give

Sherwin-Williams New Process Arsenate of Lead a place second to none, especially in localities where alkali is prevalent in the water and soil. Write for particulars.

A copy of "Spraying, a Profitable Investment," will be mailed free for the asking.



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Experimental Orchard Heating in Iowa

By Laurenz Greene, Agricultural Experiment Station, Iowa State College, Ames, Iowa

LATE spring frosts cause immense losses of fruit in Iowa and help to discourage growers until many of them neglect, destroy or dispose of their orchards. For that reason the Iowa Agricultural Experiment Station is seeking to determine the value and efficiency of some of the orchard heating devices now on the market. During the season of 1911 tests were conducted in three different orchards, and in addition several individual growers in various sections of the state also tried out heating as a means of frost protection. While the work is not complete and must be extended through other seasons, these first tests demonstrated these facts: That the temperature in an orchard can be raised several degrees in time of frost; that orchard heating as a method of insurance against frost is practicable under Iowa conditions during most seasons. The season of 1911 did not offer the best conditions for a thorough test because injurious temperatures did not occur. Although there was some slight injury to cherries from late spring frosts just at blossoming time, the temperature did not go low enough to hurt the apple blossoms seriously. Moreover, weather conditions influence the formation of blossom buds and to a limited extent determine their adaptability to with-

stand low temperatures. In 1911 this fact evidently prevented serious injury where frost protection was not provided. This was fortunate for the fruitgrowers, but it failed to give the best opportunity to demonstrate fully the value of the orchard heater in Iowa.

The largest commercial orchard heating test in 1911 was carried on at the Iowa Agricultural Experiment Station's orchard at Council Bluffs, comprising a 23-acre tract. Two other tests were conducted on home orchards, one near the large orchard, the other at Ames. For the largest test 500 heaters of the sliding-cover type were purchased of the Hamilton Orchard Heater Company, Grand Junction, Colorado. They were placed in a block in the center of the 23-acre experiment orchard and distributed at the rate of 60 per acre, about 28 feet apart each way, with a heater about eight feet from each tree. Along the north side of this heated area the pots were placed at the rate of 90 per acre, or 28 feet apart one way and 18 feet the other. As the pots were distributed the covers were fitted and two men and a team placed from 100 to 150 per hour. After the pots have been used a season the covers are likely to become more or less bent and rusty, and the work of placing will take longer. In another part of this same orchard 100

Troutman and 100 lard-pail heaters were placed, as shown in the plat of the orchard in figure 1.

Two large No. 18 steel tanks were used for storing the oil used in this test, each with a capacity of 2,250 gallons, and costing about \$80 complete. These tanks were placed in excavations in the hillsides in the orchard and the soil excavated was dumped in a driveway on the upper side of the tanks so that oil might be unloaded from the wagon tank by gravity. Each storage tank was fitted at the bottom with a two-inch gate valve with an elbow and a pipe leading down the slope far enough so that the oil could be raised above the top of a distributing tank wagon by means of a stand-pipe consisting of two short pieces of gas pipe and two elbows. With the above equipment it was a very simple matter to fill the distributing tank with oil. In using such storage tanks in the orchard they should be "set up" where

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WILMER SIEG, GENERAL MANAGER

they are to stand, as any tank of this material is very apt to leak if hauled any great distance after being set up. Difficulty was experienced along this line and some oil wasted. The oil used was known as Rayo orchard heating oil, put out by the Standard Oil Company, specific gravity 29.50 Baume. This is a heavy black oil, from which the lighter oils, such as gasoline, kerosene, etc., have been removed. It is satisfactory in that it is cheap, costing but one and one-half cents per gallon at the refinery, but is too heavy for the best results and will not burn clean in the pots, leaving a heavy residue which is troublesome. A lighter oil would give better results.

This oil was purchased in a tank car of 6,500 gallons. Counting freight and switching charges, its cost on a siding within four miles of the orchard was about two and one-half cents per gallon. It was transferred from the car to the storage tanks at the orchard in a large 600-gallon water tank and a common spray tank, about 600 gallons being hauled each trip. In all about 4,300 gallons were hauled to the orchard at a cost of about \$30, bringing the cost to about three and three-quarter cents per gallon in the storage tanks. The tank cars are fitted at the bottom with a valve which is operated from the top of the car. With proper pipe connections it is an easy matter to transfer the oil by gravity to a wagon tank, providing the tank car be placed on a raised siding. These pipe connections will

usually be furnished by the local oil companies. An effort was made to siphon the oil from the car to the tank wagon with two-inch gas pipe, but it was found impossible to make the connections tight enough to prevent the air entering, and thus breaking the siphon pressure. A siphon might be practical if rubber hose were used, but that method would not be as rapid as emptying the oil through the valve in the bottom of the car. By the latter method 100 gallons could be transferred from the car to the tank wagon in about four minutes. Where the oil cannot be unloaded by gravity it must be pumped, which is a slower method and much more expensive.

The firepots were filled from the sprayer tank, fitted at the drain with a "T" made of one and one-quarter inch pipe. On each end of this "T" was fitted a twenty-foot lead of one and one-quarter inch hose. At the end of each lead of hose a stop cock was fitted with an elbow to turn the oil downward into the pot. With this equipment, where the ground was comparatively level, about 100 pots of three-gallon capacity could easily be filled per hour. Some trouble was experienced on hilly ground in getting the oil to turn out to the tank rapidly. A high tank wagon would greatly increase the rapidity of filling the pots by increasing the pressure. In this experiment the filling of the pots, unavoidably, came on Sunday and at night, thus making the expense greater than

it otherwise would have been, as it was necessary to pay for double time. With the above equipment three men were necessary, one for each lead of hose and one to drive the team. Estimating that the three men and team were worth seventy cents an hour, it would cost very close to three-quarter cent to fill each pot. The item could be greatly reduced by the use of a little better equipment.

The pots were lighted by the use of a gasoline can with valve fixture, which made it possible to squirt a small amount of gasoline on top of the fuel oil. A torch was made of a corn cob fastened to a piece of wire and soaked in fuel oil. In high wind this torch was easily extinguished. It was then soaked in gasoline, and when burning low could be relighted easily by squirting a little gasoline on it. It required about 45 minutes for three men to light 600 pots, but one man could easily light 300 pots per hour, providing his torches and gasoline can worked well. Some trouble was experienced in drawing the covers of the pots, so that this required a little more

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time. If the pots have been used previously there is apt to be a thick residue in the bottom which is very sticky and will not allow the cover of the Hamilton heater to be drawn readily on account of the apron. If a lighter oil were used this trouble would not be experienced.

The figures given in table I herewith were taken from the reports of the United States Weather Bureau Station at Omaha, Nebraska, and give concisely the conditions under which the test was made. The weather during March and April, 1911, was very close to the normal average as recorded by the weather bureau. The last killing frost occurred at Council Bluffs and vicinity May 1, when the apple buds were opening. While low temperatures were recorded in Western Iowa as follows: Clarinda 30°, Corning 30°, Council Bluffs 28°, Larabee 27°, Logan 27°, Pacific Junction 27°, Thurman 30°, practically no damage resulted, as was shown by the bountiful crop which was harvested in the fall. The following temperatures are given by the United States Department of Agriculture as the minimum temperature which the apple buds can undergo without injury: In bud 27°, in blossom 29°, in setting fruit 30°, other times 25°. The conditions under which buds are developed influence their hardiness. The season of 1910 was very dry, with a rainfall of 18.46 inches, which was 12.2 inches below the normal average. This left the soil very dry in the spring of 1911. The weather records show

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that the blossom buds developed in a comparatively cool temperature, the mean temperature for April being 51°, with the minimum temperature very low to April 15. The mean minimum for the month was but 41.2°. The rainfall in April was .84 of an inch up to April 26, and 1.50 inches to April 30. The buds were developed, then, in a dry soil, with cool nights and a comparatively low growing temperature, and up to a few days preceding the frost in a comparatively dry atmosphere. Such conditions favor the development of firm texture in the bud, and thereby evidently tend to increase its hardiness in resisting frost injury.

Water gives up its heat slowly, and where water is present this tendency to hold its heat prevents as rapid a fall of temperature as would otherwise take place. Rain fell late in April, including April 30, the day preceding the low temperatures. It is possible that moisture from these showers collected among the leaves and bud scales, and by giving up its heat more slowly served as a protection to the blossom buds.

To be continued.

The Harrison Nursery, of Berlin, Maryland, has issued a very attractive catalogue, "Why and How of Shade Trees and Evergreens," which is very interesting.

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1906, at the Postoffice at Hood River, Oregon,
under Act of Congress of March 3, 1879.

This Year's Apple Crop.—The apple situation, as far as marketing is concerned, seems to be in an unsettled condition. Apple dealers and growers apparently are not successful in arriving at prices that are mutually satisfactory. The quantity of apples estimated in the United States seems to vary from 35,000,000 to 50,000,000 barrels. The Western box crop has been estimated as high as something like 35,000 carloads. An Eastern dealer who has handled a great many Western apples stated in one of the trade publications that the crop of the Northwest will not exceed 15,000 cars. It is unfortunate that there should be such wide differences in reference to the apple crop of this year. The natural result is, the dealer doesn't know what to do, and the fruit grower is not any better off. So many different marketing plans are being tried out this year, particularly in the Northwest, that it has a tendency, for the present at least, to keep everybody guessing. Before very long the harvesting in many of the Northwestern states will be completed and the actual number of carloads in each state known, and we might add that the amount of barreled apples in each state will also soon be determined, and when all this information is obtained the problem will probably take care of itself and be solved by the law of supply and demand. That there is a good sized crop of apples in the United States is the general opinion, but conservative

people do not think at the present time that there is going to be anywhere near as large a crop as originally estimated. The apples in many districts are running small, which means less quantity. Fall and early winter varieties probably will go on the market rapidly from now on, and market values will determine the prices. The movement of apples is very early this year, consequently consumption will start in early in the season, and if the proper percentage of apples is marketed between now and the first of January reasonable prices will be obtained. If too large a quantity is held in cold storage, prices in the latter part of the season will be affected. It has been stated by prominent men in the apple business that from fifty to sixty per cent of the apple crop ought to be consumed by the first of the year; some state as early as the first of December. Good common sense and intelligence must solve the problem. If too many apples are piled on the market indiscriminately from now on to the first of January low prices are apt to prevail. On the other hand, if too many apples are held in cold storage low prices will prevail the latter part of the season.

The significant illustration on the cover page is produced through the courtesy of the Davis Creek Orchard Company, Davis Creek, California. It is a simple appeal for health's sake. It is an appeal for greater consumption. It is a well known fact that apples are one of the most wholesome foods, and it is equally well known that even with our bountiful crops good apples are rare in nearly every home. Here is a problem. What shall the grower and dealer do to increase consumption, to promote wider distribution? We shall be pleased to have practical articles on this subject from anyone in the fruit industry. We suggest that the articles be brief but forceful. It is our intention to publish as many of the articles as our space will permit in each edition of "Better Fruit."

"Better Fruit" is now in its seventh year. It has steadily improved. We have never deviated from our original intention of publishing the best and handsomest fruit publication issued anywhere in the world. From the many letters received from prominent men connected with the fruit industry all over the United States, Canada and in many foreign countries, we feel that today "Better Fruit" is the most influential publication of its kind issued. According to the charges of other publications, "Better Fruit" is worth twice the subscription price that we charge. We believe that the fruit growers want just such a paper as we are publishing, and we believe we are entitled to the support of every fruit grower, therefore we are going to ask of every reader of "Better Fruit" a personal favor. We want to increase our subscription list. This is human nature. You can assist "Better Fruit" by seeing that your neighbor subscribes.

Kirby S. Miller, manager of the Rogue River Fruit and Produce Association, died at his home in Medford Sunday, October 13, of acute dilation of the heart. It is thought Mr. Miller's illness was brought on by overwork and mental strain. About three years ago he became associated with the Rogue River Fruit and Produce Association, acting first as secretary, and during the past two years has been manager. He was



an earnest worker, a man of very bright mind and a keen observer. He devoted much time to studying the fruit industry from its different points of view. The amount of knowledge acquired by Mr. Miller about the fruit industry in a very short space of time was strong evidence of his ability. He leaves many friends who will sincerely regret his sudden death and who join us in expressing our sympathy to the surviving widow and children.

We are indebted to Mr. John H. Williams, Tacoma, Washington, for a copy of his latest book, "The Guardians of the Columbia." Mr. Williams is the author of the book entitled "The Mountain That Was God," of which forty-five thousand copies were sold in two years. "The Guardians of the Columbia" shows some of the more important regions of the Pacific Slope. It is magnificently illustrated, portraying the scenery of the Northwest, the grandest in the world, with a short descriptive article about each illustration. Mr. Williams deserves a vote of thanks from every person of the Northwest. This book will convince the Easterner of the magnificent scenery of the Northwest and will substantiate the argument "See America first."

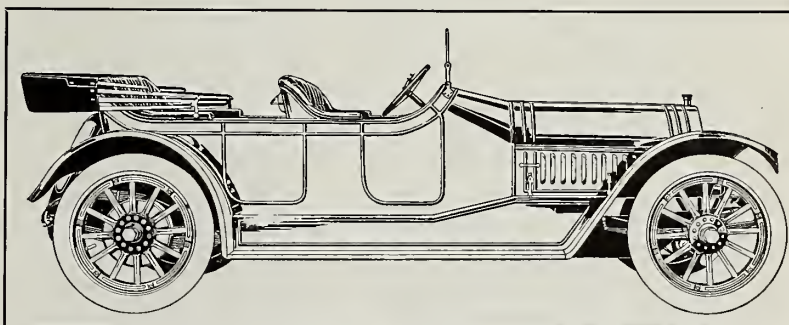
The November Edition of "Better Fruit."—Through the courtesy of the Census Bureau of the Department of Agriculture we have obtained statistical tables that are published in this edition of "Better Fruit." These census reports of the different kinds of fruits are very valuable information for everyone engaged in the fruit industry. The reports

The 1913 Mitchell

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contain the number of trees at bearing and non-bearing age of all the principal kinds of fruits that are grown in the United States, such as apples, peaches, pears, plums, grapes, etc., but do not include any of the citrus fruits. These reports are very valuable for reference. Every subscriber should keep this copy of "Better Fruit" and study over the situation carefully and draw his own conclusions. We intend to write a review expressing some of our ideas, which we will publish in one of the early editions of "Better Fruit."

The December edition of "Better Fruit" will be devoted to the small fruit industry. We hope and expect this to be one of the most interesting numbers on this subject we have ever published. The edition will deal with blackberries, raspberries, strawberries, currants, gooseberries, loganberries and other varieties, containing information about growing, harvesting and marketing. The diseases and treatments of the various kinds of small fruits will also be well covered. The small fruit industry is one that has been largely overlooked in the past by the fruit growers of many sections. Fruit growers are just beginning to learn that large profits can be made from this business.

The Pacific Northwest Land Products Show will be held in Portland, Oregon, November 18 to 23. This is a different kind of show from any that has ever been held in the Northwest and is

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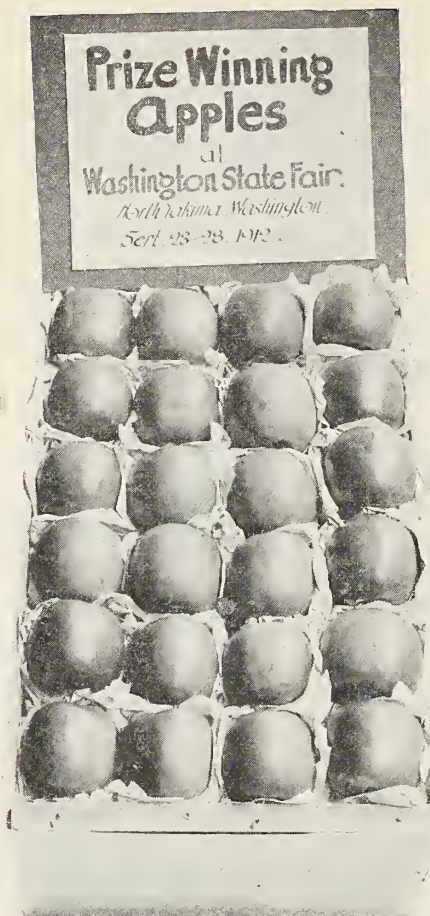
SEATTLE

LOS ANGELES

attracting a great deal of attention. The business men of Portland are back of the show and this is sufficient evidence to indicate that it will be a grand success. Every fruit grower and farmer should not fail to attend, for the reason that the show will be educational in every way. In addition it gives you the opportunity of meeting men engaged in like industry from all parts of the Northwest.

The Spokane Fifth National Apple Show, which will be held November 11 to 18, promises to be a splendid apple show, and in addition is introducing many educational features for the benefit of the fruit growers. There will be a conference held by the traffic managers of the different railroads, which will be attended by the bankers and fruit growers, to discuss ways and means of transportation facilities. The valuable knowledge that will be obtained from intelligent discussions of these problems from the ablest business men associated with the fruit industry will well repay every grower for attending this apple show.

The accompanying photograph of one of the boxes of apples with which Mr. C. J. Schultz of North Yakima won the Yakima Valley Transportation Company (O.-W. R. & N.) silver trophy cup at the Washington State Fair is worthy of special note by all who are interested in the growing or marketing of agricultural products of any kind, be it fruits, vegetables, grains or live stock. One of the strongest features of this exhibit, as may be easily seen from the illustration, is the remarkable uniformity in both size and form. These apples, which are of the Grimes Golden variety, indicate not only clean, well developed fruit, but also careful grading by the packer. This point is of far more importance than the ordinary producer, packer or shipper seems to realize. It is true that under the up-to-date manner of packing fruit this is carefully considered, but it should be extended to cover all kinds of farm products. It makes no difference what the sizes are, only one size of anything should be included in one package. Let this apply to boxes of fruit, bags of vegetables or grain, and as far as possible to carloads of cattle, sheep or swine. If you have some specimens that are under size or over size and mix them in with medium and standard sizes they tend to lower the grade of all, and in many cases the price received will be little, if any, in advance of what might be received for the poorest grades. We will take, for example, potatoes. The ordinary crop consists of various sizes, which may be considered as small, medium and large. Sometimes even five or six sizes may be selected. Some will take the small ones at nearly market price, while some will choose the large ones, and others have been known to pay a premium for extra size for special purposes. However, the greatest demand is for medium sizes, and if they are nicely graded, both for size and form, a generous advance over



the market price may be commanded. Of course mixing of varieties is one of the worst forms of non-uniformity and should always be avoided.

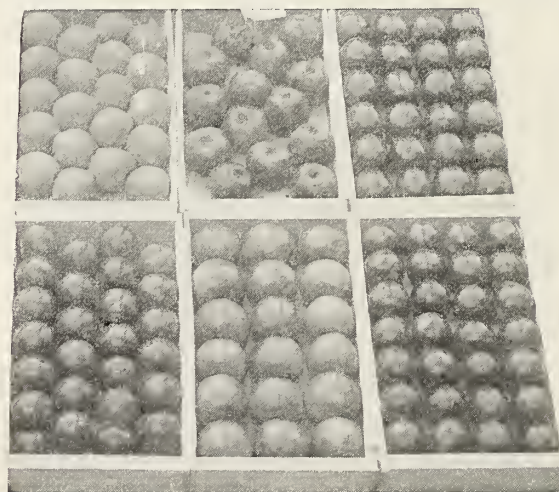
Tent Caterpillars

There are two common species of tent caterpillars in Washington, specimens of which are often sent to the State Experiment Station for advice as to how to combat them. One of these lays eggs on twigs the size of a lead pencil, making a girdle of the small eggs around the twigs. The other species lays its eggs in a blotch the size of a ten-cent piece, covering the eggs with a frothy material. Tent caterpillars

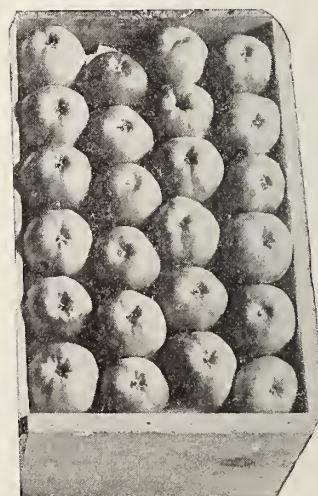
are particularly abundant in the spring. They are easily recognized by their habit of spinning a web in the forks of some branch near where the eggs have hatched. At times they migrate from their tents to feed on the foliage. During cold days they are apt to gather together in numbers on the trunk of the tree. They feed on a great many kinds of plants in Washington, working in the alder groves and thence into the orchard.

Tent caterpillars can be controlled by several methods. During early spring the egg masses may be sought and destroyed. The ordinary sulphur lime spraying of spring destroys a great many of these eggs. When the young hatch they may be burned in their tents by means of a torch. A common practice is to fasten on the end of a pole a funnel of wire screening and place kerosene rags at the bottom of the funnel. This sort of torch will catch those caterpillars that drop when they feel the heat. A plain torch would permit such caterpillars to escape. The tents may be cut out of the trees when first noticed or the adjacent branches may be sprayed in the spring with an arsenical. Orchards that are regularly sprayed in the spring with an arsenical rarely suffer from an attack of tent caterpillars. It is claimed that the new spray, arsenite of zinc, is particularly adapted to tent caterpillars. It is a concentrated poison and may be used one pound to 80 or 100 gallons of water for this pest. There are other species of caterpillars that live in tents, as, for instance, the fall web worm. The same treatment would answer for this insect.—Contributed.

Professor P. J. O'Gara of Medford, Oregon, has just completed a 6,000-word article on orchard heating, for publication in Dr. Bailey's New Encyclopedia of Horticulture. Professor O'Gara is an associate editor of "Better Fruit" and is a recognized authority on orchard heating.



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Test Your Drinking Water

By W. R. Wright, Assistant Bacteriologist, Idaho Experiment Station

THE water that one drinks has as much influence on the health as the air breathed or the food eaten. If drinking water is contaminated by surface or underground drainage from a barnyard, an earth closet or some other similar objectionable source it is quite certain to contain bacteria which thrive in the intestinal tract of man or animals. Chief among these are the colon bacillus, which causes summer complaint in young children; typhoid bacillus, the cause of typhoid fever, and the tubercle bacillus, the agent which causes consumption. As the two latter are rarely present if the colon bacillus is absent, a test for this organism is a sufficient test for the purity of drinking water. A simple and inexpensive test may be made in any home or school by observing the following directions:

1. Collect the following material and articles: Three one-ounce or two-ounce bottles; a piece of cotton batting; a teaspoon; four pieces of twine, each a foot long and of different sizes; a bar of soap; a teakettle; a clean ten-quart pail; a freshly-laundered towel; a dairy thermometer; a cup of freshly separated milk; a fireless cooker or a box or barrel stuffed with fine hay.

2. Early on a bright, still morning fill each of the three bottles about two-thirds full of the milk, double a small piece of the cotton and press into the neck of each bottle; tie one of the strings, a foot long, to the neck of each bottle and hang them with the teaspoon in the teakettle by pressing the

lid down to hold the strings and keep the bottles suspended.

3. Set the teakettle, containing water, bottles of milk and spoon on the stove and boil for an hour.

4. At the end of an hour remove the teakettle from the stove, and after hanging a tumbler on the spout and stuffing it with cotton permit the contents to cool to the temperature of the hand.

5. Carry the teakettle and contents, unopened, to the well to be tested. (Just previous to this the hands should be washed with soap and water and dried on the clean towel.)

6. Pump four pails of water at the usual rate of pumping, leaving the last in the pail.

7. Lift the bottles of milk and the spoon out of the teakettle by the strings and set the bottles on a board or shingle or have an assistant hold them by the bodies of the bottles. Do not touch any part of the spoon except the handle. Remove the stopper from the coarse string bottle and put about ten drops of water into it, being careful not to touch the bowl of the spoon or the mouth of the bottle with the fingers. Replace the stopper.

9. Put one drop into the medium string bottle, using the same care.

10. Tie the strings of all of the bottles together and suspend them from a stick across the top of a pail of water that is to be kept at a temperature of from 90 to 100 Fahrenheit in a fireless cooker, or a box or barrel of hay for thirty-six hours.

11. If none of the bottles of milk are curdled the water is safe for drinking; if only the coarse string bottle is curdled and there are no gas holes the water is probably safe; if the coarse string bottle is curdled and full of gas holes the water is very questionable; if the medium string bottle is curdled and full of gas holes the water may be considered very unsafe and should be boiled before drinking.

French Imperial Prune

The Imperial prune is one of the best growers, not alone on account of its size, which is extreme, but its fine appearance as a dried prune makes it very attractive to the packer. Some of the Santa Clara prune growers, whose fruit will average about 30s, have refused an offer of thirteen cents a pound for the coming crop. But aside from these good qualities it has one very serious defect, and that is shy bearing, which in some sections is very pronounced.

A method that is now gaining favor is the planting of French with the Imperial. It has been noticed that where the two varieties are planted in adjoining blocks the Imperials will bear better for two or three rows next to the French, although the latter shows but little, if any, effect. This plan gives such promise that, where the Imperial is desired, some of the new orchards are being planted with one row of French alternating with two rows of Imperials, and these two rows will later have a little French wood grafted into each tree.—E. Ralph Ong, San Jose, California.



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Moles and Gophers

From Wenatchee Daily Republic

THAT it is no simple task to get rid of gophers and moles and other rodents is the opinion of A. L. Lovett, pest expert at the Oregon Agricultural College at Corvallis, Oregon. He believes it is necessary to use a combination of treatments rather than any one system.

"In most cases," he says, "one will have very good success during the early part of the fight with the poisoned bait. Fumigation with carbon-si-sulfid gives very good success in newly-formed burrows of the pocket gopher. This method is used extensively through the Middle West on a commercial scale, and over large fields. Where the application fails it is usually due to the very extended underground burrows which occur in fields long infested. The carbon-si-sulfid is used at the rate of three to six ounces to each pocket. Saturating dry horse manure and working this down into the burrow is a very good method of application. The material may be poured slowly into the hole direct. After treating the hole cover it thoroughly to hold in the fumes. Always bear in mind that carbon-si-sulfid is as inflammable as gasoline. Do not open it near a hot stove nor smoke while making the application. When the number of pests are considerably lessened they seem to become wary of such methods, and then possibly the trap will be about the only way that you can catch them. After the traps cease to be effective a small boy with a rifle will usually keep them down pretty well. This pest usually appears above ground at certain hours of the day and can be shot very rapidly. There are two methods of preparing the poisoned bait. One consists of simply using pieces of carrot or potato, or even raisins. Make an incision in each piece and slip in a crystal of strychnine sulphate. The burrow should not be left uncovered in the case of the pocket gopher; simply scrape away the surface soil to expose the tunnel; the bait may then be dropped into the hole and the soil

replaced. In the case of moles a sharp-pointed stick may be pushed down into the uplifted earth around the tunnel and the bait dropped in. Then simply stamp on the burrow to cut out the light from below. The other method for preparing the bait with poison is as follows: Dissolve an ounce of strychnine sulphate in a pint of boiling water; add a pint of thick syrup and stir thoroughly. Scent this with a few drops of anise. This mixture is sufficient to poison a half-bushel of wheat or corn. Simply pour it over the grain and stir vigorously. This grain, of course, should not be scattered in exposed places where birds and poultry would get at it. In the case of traps, I don't know that any particular make is to be recommended. All of them have certain things which make them, in the eye of their manufacturer, a little superior to other types."

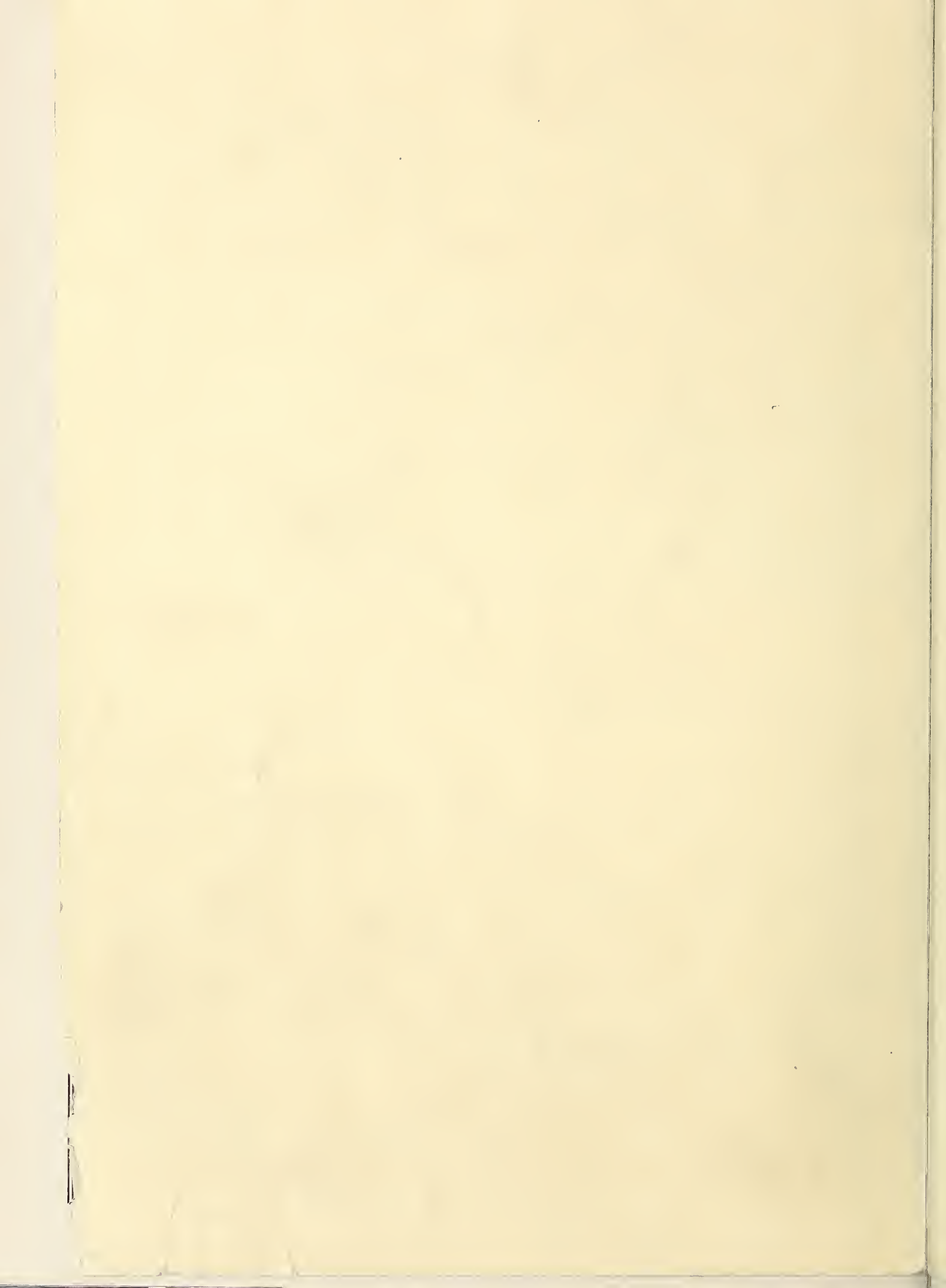
Mr. A. J. Beck, who is making quite an extensive tour of the Northwest, called at our office during the past week. Mr. Beck was the originator and designer of the spray pumps and accessories of the Beck Sprayer Company of Lansing, Michigan, but in March, 1912, severed his connection with this firm and associated himself with the Hayes Pump & Planter Company of Galva, Illinois, being in charge of the designing of their complete line of spraying machinery. Mr. Beck has traveled very extensively for the past eight years, studying the conditions of fruit spraying from the Pacific to the Atlantic, touching nearly every section of the United States.

Editor Better Fruit:

Enclosed find one dollar for one year's subscription to your magazine. I want to compliment you and congratulate you on the August number, "Prune Special," which you recently sent me. That one number is worth the price of the subscription to me in bringing together prune material that I have hunted for in vain in various places.—W. W. Silver, Newberg, Oregon.

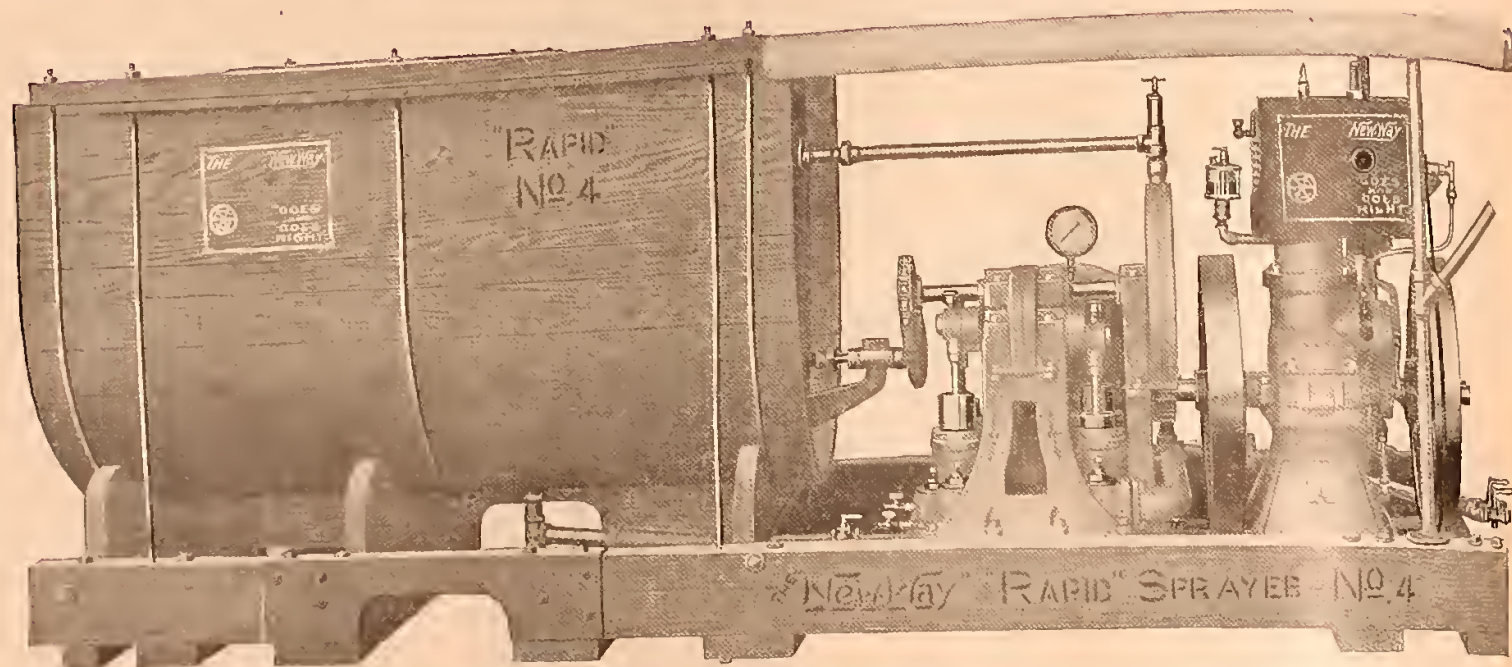


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Spraying Machinery—Its Use and Abuse

By George P. Weldon, Entomologist, Colorado Experiment Station

SPRAYING is conceded to be one of the most important operations of orchard practice. The manner in which it is done very often determines the quality of the crop of fruit that is produced. The very best results in spraying are hard to attain with the use of poor machinery. In those sections which are best adapted to the growing of fruit, and where the industry has assumed a stage of great commercial importance, the gasoline power sprayer is much more generally used than any other type of spraying machine. To say that this machine has revolutionized the spraying business is literally true. Had the orchardists in our fruit sections to depend today on the old fashioned barrel and tank pumps, manipulated by hand, the high degree of efficiency possible with a modern gasoline power outfit could not be attained.

Wherein does the gasoline power spray differ from the old type of hand pump, so that its use results in greater efficiency? In the first place, and probably of more importance than anything else, it is capable of giving a pressure impossible with a hand machine. Anyone who has worked the handle of an old barrel pump hour after hour knows that with its use a pressure of more than 100 pounds is almost out of the question. Our modern gasoline outfits, with from two to four leads of hose,

will easily maintain a pressure of from 160 to 200 pounds. It is probably true that such a high pressure is not necessary in all cases, but it is true that by means of it more thorough and consequently more effective work can be done in a much shorter time and with much less effort.

Often the small orchard holder cannot afford to pay \$400 for a good power machine when he can buy a barrel outfit for \$20. The latter can be made to do the work well with a greater amount of time and labor expended. There is a tendency in the fruit sections to try to get along with too few machines. There are certain times when spraying must be done immediately if good results are to follow. For example, the period when the first spray for codling moth must be applied to be effective is never much more than ten days, or from the time when the petals drop until the calyces close. Often one machine will be expected to spray a hundred or more acres during that time. Can it be made to do it, and do it well? Let us see. In Colorado the average number of apple trees per acre is not less than sixty. Trees that are from fifteen to twenty-five years of age will require at least from ten to twenty gallons of spray per tree if thorough spraying is done. For one

acre of trees, putting the average at fifteen gallons per tree, it would take 900 gallons of spray, or four and one-half tanks of the ordinary (200-gallon) size.

Unless water is very handy and other conveniences proportionately so, it is seldom that more than nine tanks can be applied in a day with two leads of hose and medium coarse nozzles. In other words, only two acres of such an orchard can be well sprayed in one day with one power sprayer. Allowing the maximum time of ten days for the calyces to remain open, only twenty acres of orchard can be treated with one machine. Yet I know dozens of machines that are expected to spray two and three times as much in a season, and owners of orchards so sprayed condemn the arsenate of lead used, the methods of spraying advocated by those "scientific men," and possibly everything else except the real reason for their failure—a desire to make one machine do more than it can possibly accomplish.

Besides the provision for maintenance of a high pressure, there are other things that the power sprayer should possess in order that the highest degree of efficiency in spraying may result. The agitation of the liquid in the tank is an important matter. In the case of most of our sprays, the individual particles that make up the insecticide are suspended in the water. Unless the sprayer is equipped with a good agitator these particles will settle to the

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Spokane, Washington

bottom, thus rendering the mixture in the top of the tank weaker than it should be and that in the bottom stronger, possibly in some cases too strong for safe application. Most of the power sprayers are equipped with suitable agitators, and none should be purchased unless it is known that it is efficient in this respect.

It is needless to say that the care of spraying machinery should never be neglected. The man who pays \$400 for an outfit cannot well afford to let it stand out over winter where the metal parts will rust, where the tank will dry out and deteriorate, if it is a wooden one. Too often gasoline engines are ruined because water is left in the cooling jacket until cold weather comes on. It freezes there, and the engine is useless until another cylinder is purchased. Much of the trouble with a gasoline power sprayer could be prevented if care were exercised in the fall to clean the outfit thoroughly, to drain the engine, to care for the nozzles, leads of hose, etc. Then in the spring another careful overhauling ought to put it in such shape that there should be little trouble during the spraying season. Not only should all this be done, but always after a lime and sulphur or other caustic spray is used, the machine should be thoroughly cleansed by running clear water through it, including hose, rod and nozzles. The spray will not only injure different parts of the machine, but will also harden, and small pieces will clog nozzles when again used. The power sprayer is a high priced piece of machinery, but it is an effective piece of machinery when properly handled. Its usefulness can be greatly decreased by improper care.

Walnut Growing in Oregon

Yamhill County has more acres in walnuts than any other county in Oregon. Ninety per cent of the walnut plantings in Oregon are in Yamhill County, and this county also has over half of the total acreage of bearing orchards in Oregon, in which statistics go to show there are about two hundred acres. One of the largest growers is Thomas Prince of Dundee, who has sixty acres of walnut trees which are from twelve to fourteen years old. Dundee and Sheridan are the two principal centers of the walnut industry in Yamhill County, with the former the largest producing point at present. The Churchill-Matthews orchard at Sheridan comprises 800 acres, which makes it the greatest planted acreage of any place in Oregon. Yamhill County is noted for its walnuts.

If your trees produce fancy fruit the boxes or barrels you ship it in and the cash receipts from its sale should bear every evidence of the fact. Do they? Schellenger Fruit Grading Machine Company. *

Sibson's Rose Nursery, of Portland, Oregon, have issued their new catalogue for 1912-13, specializing roses and holly.

"Diamond Quality"

FRUIT TREES

Grown
IN
Oregon

Have heavy fibrous roots, are

Sturdy
Well Grown
Healthy
Trees

and are dug and packed as ordered.

SPECIALS

Apple Trees

This is the year to plant apples. Better grades at lower prices than ever before. Write us.

Dwarf Fruit Trees

Make profitable fillers for young orchards and are best for home gardens. Our stock is large; varieties and prices right

Asparagus Rhubarb Strawberries

Planted now bring quick returns. Big profits. We offer splendid stock; any quantity.

Write us direct. We employ no agents.

These apple trees with well branched tops and large fibrous roots are 7 feet high and only ONE YEAR OLD.

OUR 64-PAGE AUTUMN CATALOG of Fruit, Shade and Ornamental Trees, Berry Plants, Roses, Bulbs and Flowering Plants, listing profitable varieties for commercial or home planting is a safe guide to your purchases and will be sent free on request.

Ask for Catalog No. 201.

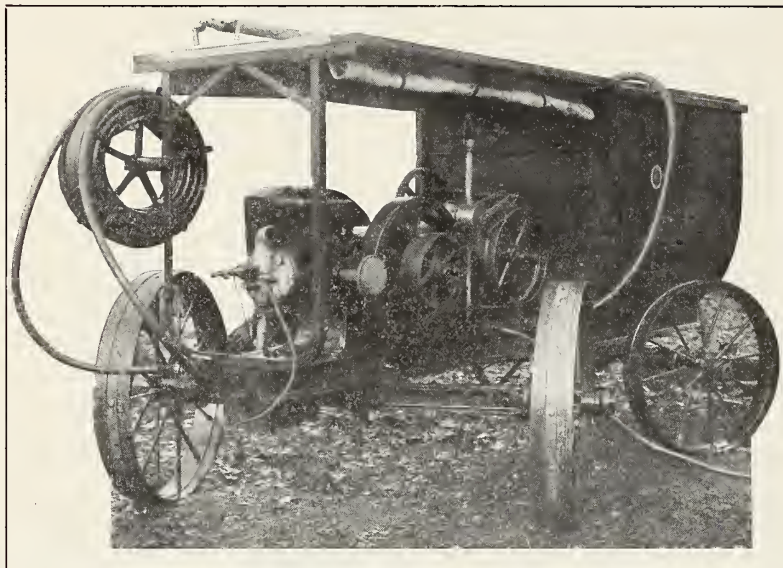
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PORTLAND, OREGON

The New Hayes Orchard Sprayer

300 POUNDS PRESSURE GUARANTEED



4-H.P. engine and triplex pump; heart cypress tank; steel construction; cross reach orchard truck and will turn in 14 feet. Don't fail to see and investigate this wonderful SPRAYER AT THE NATIONAL APPLE SHOW AT SPOKANE, WASHINGTON, NOVEMBER 11TH TO 17TH.

We also manufacture many smaller sizes of power sprayers, bucket pumps, hand pumps, hose, bamboo rods and nozzles.

We will have complete stocks at Payette, Idaho; North Yakima, Washington; Portland, Oregon, and many other Western points.

WRITE FOR CATALOG DESCRIBING OUR FULL LINE

Hayes Pump & Planter Company, Galva, Illinois

Invigoration of the Old Orchard

By W. D. Newhouse, Underwood, Washington

ONE of the many discouraging sights to greet visitors presenting themselves among us is the neglected orchards. I wish to emphasize the term neglect in the sense applied and classify it under two heads, viz., cause and effect. The natural continuously clamors for recognition at the hands of the practical orchardist, and he is quick to discern any divergence from the routine of growth, so highly significant of the coming harvest. Ways innumerable present themselves for our earnest consideration whereby growth may be assisted, and by a process of invigoration applied to the trees may change the current of decay into one of renewed life and vigor. Natural surroundings and climatic conditions being favorable, our orchards, by proper care, are bound to produce otherwise than nothing—Dead Sea apples—the only return for nothing expended. Fate decreed my lot should be cast among similar surroundings last October, with the ever-recurring plague, "the neglected orchard," on my hands. The trees had been cut back (dehorned would fit the case better) with but little forethought evidenced as to what was required or results sure to follow. They were headed high, thus requiring an increased vigor for support. The lateral growth had not been thinned out and very little of the

old wood had been removed. I have understood the orchard was a stranger to spray of any kind. Most of the trees were hide bound, being discernible by the cracks and crevices in the bark. Worst of all, two Ben Davis and four Newtown trees were evidently dying. The cause was plain, as the living bark consisted only of a small strip on the side of the trees, not being enough to sustain vitality. The case was a puzzling one to me as to cause, until by comparison I found the same condition existing in each case. I also found the affected trees were in a row from east to west, with dead side facing west. I felt I had found a clue to the cause which had done the mischief. I learned from my good neighbor that two years ago an extreme hot wave passed through his orchard, killing some small trees. On my way home I came by way of the orchard and easily found where the blast had entered. Going straight up the row toward the east until reaching the house there was an evident deflection to the north one row, thence east to within two trees of outside row which were marked by dry tips on west side. I had proven by circumstantial evidence the truthfulness of my neighbor's statement. Two trees were lopping over in the row, which proved upon examination to be the work of a hidden enemy, the gopher. Verily, the

patients of my care were sick, much sick, and many of those described must die without prompt attention being given through the application of some remedial force. Vital energy must be restored and invigorated. I could help to accomplish this by pruning, which I did in the proper time of all times, February. Then came the spray, consisting of sulphur and lime wash (1-1-4 formula). During the latter part of April I applied a solution of my own composition, consisting of lime and lye, in the following manner. After tying some old cloth to the end of a stick to serve as a handle I immersed the cloth into the solution, then withdrawing it I continued striking the base of the tree sharply until I had covered all surface as high as I could reach from the ground up. Why? Effect demanded it. For the same reason massage is applied to the human system to invigorate and make alive. I have seen old and unproductive trees made immediately productive by the treatment above. Let me not forget to mention that by striking the solution into the pores and cracks of the bark not only external but internal application ensues. Our next patients awaiting attention are those suffering from an insufficiency of nature's clothing, caused by sunscald. What would be productive of fibrous growth to the trees in question? Answer: The conservation of moisture to the affected parts. Inasmuch as the wood of the trees was comparatively dead this

operation could not be secured by way of the soil, but those affected parts must receive the ministration; moisture must be applied and kept there. If moisture, then why not food as well?

Some years ago I saw an account of a man having fasted forty days, but I afterward learned he submitted himself to a bath of milk each day, thus feeding his system through the pores of the skin. As bark is porous, we will now proceed to feed those trees and thus assist the natural law by which they live, in the production of clothing to cover their nakedness. Painting the diseased parts would act only as a protection from without and a harmful influence from within from the effect of oils or turpentine. I use a rich, pliable, compost (as retentive of moisture as anything I have found), putting it on from two to three inches thick, keeping it there by winding the tree with strips of burlap and tying it in position. If this season is favorable I shall look for nothing less this fall than six new trees in gala attire, ready for a new year of productiveness. I have saved many valuable trees by this method. Do not condemn it untried. For the conservation of moisture I am leveling down the mounds now heaped about the base of the trees, to be followed by thorough and deep tillage, to be continued through the season. For the gophers I cut a small opening in a raisin, inserting enough strychnine or rat poison to accomplish the work, and place the bait in their runway. Scarcely ever do they require any further attention.


Walla Walla Prune Crop

According to the report which came to "Better Fruit" the Walla Walla prune crop will total 325 cars. They were shipped as follows: Milton & Freewater district, 170 cars; Shields Fruit Company, 30 cars; William Hurst of Freewater, Oregon, 16 cars; the balance was shipped from the Blalock Fruit Company, Walla Walla Vegetable Union and the Walla Walla Produce Company. The price obtained was not as good as that of last year, but the growers received from twenty to twenty-five dollars per ton.

Till Your Soil Thoroughly

Thorough summer tillage of all crops capable of cultivation, fruit trees, berry vines, field crops, etc., is extremely important, yet very feebly recognized, particularly in humid sections. Numerous observations made in and about Puyallup Valley show very clearly that at least ninety per cent of the farmers have no conception of the importance of thorough summer tillage and are not securing over one-fourth, and many not over one-tenth, of possible results principally through lack of proper tillage.

Summer surface tillage accomplishes three objects: 1. Conserve moisture. The effects of the annual summer drouth in Western Washington may be largely



BONDED **BROKERS**

Apple Associations and Shippers Who's Your Broker?

We have markets that are second to none and **KNOW** it will be to your advantage to get acquainted with the largest exclusive Bonded Brokerage house in the Middle West.

*Get in touch with us before
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FRUIT DISTRIBUTORS
Car-Lots Exclusively

CHICAGO 186 North La Salle Street
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(Bonded with State of Minnesota for \$5,000.00)



No. 101 Gasoline Tubular Torch. Price \$10.00

KILL THE BUGS

The Turner No. 101 Gasoline Tubular Torch Will Do It

The flame of this Torch can be passed quickly over the bug infected parts of fruit trees, etc., and the heat and gases will destroy animal life, insects, larvæ and eggs. An excellent means for exterminating the tent caterpillar, gypsy moth, bag worm, etc. The Torch can be used in any position and is also very effective for destroying insect pests on the surface or below the surface of the ground.

Length of Torch, 5 feet 9 inches; diameter, 2 inches; capacity, 3 quarts. Burns three hours from one filling. Works automatically. We prepay express if cash accompanies order. Liberal discount to dealers. Agents wanted.


The Turner Brass Works

SYCAMORE, ILLINOIS

VIRGINIA APPLE ORCHARDS

In the beautiful Blue Ridge Mountains and Shenandoah Valley section of Va. produce the finest flavored Apples in the world. They grow to perfection, and bring the highest prices in American and European markets. A few acres costing only \$15 an acre and up, planted in orchard will make you independent for life. Write for latest issue "The Southern Homeseeker," low excursion rates, apple booklet and other interesting literature.

F. H. LaBaume, Agr. Agr., Norfolk & Western Ry. Bldg., Room 42, Roanoke, Va.



overcome by thorough surface tillage if begun while there is plenty of moisture in the ground. Tillage does not create moisture, it simply prevents its evaporation from the soil. 2. Destroys weeds. Even though there may be moisture enough to supply both the weeds and the growing crop the weeds will rob the crop of available plant food. There is seldom much surplus available plant food in the soil at any

given time, and usually not as much as the crop would use if there were more available. 3. Keeps the soil open, permitting the entrance of air, thus aiding a more rapid development of available plant food.

Summer tillage should usually be shallow, not over three inches deep, and frequent enough to keep the soil clean and the surface loose. If the surface of the soil becomes crusted or



One of the reasons why

THE "STAR"

Is the Ideal

Orchard Ladder

Is because it

Is Safe

There's no fear of falling or slipping when you use a "Star" Orchard Ladder.

At the top it is doubly strengthened with galvanized steel braces and pivoted on a steel rod.

Every step is set in a groove and secured by a galvanized steel bolt. The hardest strain on a ladder comes on the first three steps. In the "Star" these are doubly braced.

Get the "Star" from your dealer or direct from factory.

FREE! BOOK ON PRUNING

A practical and instructive book entitled "Helpful Hints on Pruning," by L. H. Day, County Entomologist, telling how, when and why to prune, will be sent **free on request**. Write for it today!

UNION BLIND & LADDER CO.

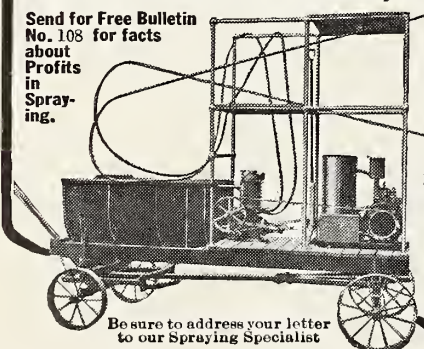
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DETROIT SPRAYING OUTFITS!

Are the best that money can buy. Sold at lower prices than are asked for inferior outfits.

Power and thoroughness are absolutely essential to success in spraying, and these two features are embodied in the **Detroit Spraying Outfit** to a much greater extent than in any other. Designed by a practical and successful orchardist. Operated by a 4-horsepower **Amazing Detroit Kerosene Engine**. Exceptionally high platform enables you to get right to the top of the tallest trees and four full horsepower enables you to

Send for Free Bulletin No. 108 for facts about Profits in Spraying.



Drive the Mixture Right Into the Bark

Embodies every convenience. Pump started and stopped from upper platform. Built on a platform of standard width so that it can be placed on any farm wagon. Also can be used as a portable pumping outfit or fire engine. Engine can be quickly removed and used to furnish power for any other purpose.

300 Lbs. Pressure at Nozzle with 8 Nozzles

Write at once for Bulletin No. 108, giving startling facts in regard to the profits to be derived from spraying, together with full and complete instructions, formula, spraying calendar, etc. (148)

DETROIT ENGINE WORKS

Spraying Dept., Bulletin No. 108, Detroit, Mich., U. S. A.

Be sure to address your letter to our Spraying Specialist

beaten down by heavy rains it should be cultivated to break the crust and loosen the surface, even though it may be clean. If there is no rain for several weeks the surface should be loosened about every ten days anyway. Any tool may be used that will accomplish the results desired most economically. Due consideration must be given to specific requirements or peculiarities of crops.—Contributed.

Governors Select State Days

Governors of the seven Northwestern States which will be represented at the Northwestern Products Exposition in Minneapolis, November 11 to 23, 1912, have selected their special state days, when the entire exposition will be conducted with special reference to the state in whose honor the day has been set aside. The governors and their

representatives will speak in the lecture halls; the commissioners in charge of exhibits will give away samples of their products and souvenirs; the biograph halls will be devoted to the showing of motion pictures and stereopticon views, illustrating life on their farms, in their orchards and cities. When it is "Minnesota Day" all will be Minnesota, and each in its turn will be paramount.

Here are the special days selected by the governors and set aside for doing honor to the states and cities or special interests represented: First week—Tuesday, Opening and School Children's Day; Wednesday, Agricultural College Day; Thursday, Minneapolis Day; Friday, St. Paul Day; Saturday, Oregon State Day. Second week—Monday, North and South Dakota States Day; Tuesday, Minnesota State Day; Wednesday, Montana State Day; Thursday, Washington and Alaska Day; Friday, Seven States Day and Conservation Day; Saturday, Idaho and Closing Day. The exposition will be closed on Sunday, November 17, and will not be open for even a sacred concert.

Minneapolis civic and commercial organizations will attend the exposition in a body on the afternoon and evening of their respective days, and will put on special programs in the lecture halls. The Northern Pacific Railway will have an exhibit at the exposition that will do credit to itself and also to its tributary country. All the Northern Pacific States will be represented and a display of fruits, grains and grasses will be given that is typical of the entire Northwest.

Tobacco Sprays

Professor A. L. Melander, Entomologist of the State Experiment Station, gives the following information about tobacco sprays. For such insects as do not actually chew and swallow particles of leaf matter; in this class, particularly the various species of aphids, there is no better spray than the tobacco preparations. The sprays may be made at home by steeping cheap tobacco with water from thirty minutes to one hour. The decoction should not be boiled, but kept just under the boiling point. Tobacco scraps may be used in making this decoction at the rate of one pound of leaves to every four gallons of final dilution, or two pounds of stems to make the same amount.

Extracts of tobacco are now on the market which do away with the trouble of preparing the decoction. They are highly concentrated and should be used according to the directions on the containers. The best known of these is now sold in Washington by the carload

CHEEK-TO-CHEEK GRADING



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SCHELLENGER FRUIT GRADING MACHINE CO.
OGDEN, UTAH.

and is a product of the Kentucky Tobacco Products Company. It is known as "Black Leaf" and may be used one part added to from sixty-five to one hundred parts of water. The black leaf is a thick, sirupy, black substance which may soil the fruit. A new form of the spray is called "Black Leaf 40." This is nicotine sulphate and is so concentrated that it will go ten times as far as the old black leaf. At this dilution it does not stain the fruit, and therefore may be used on fruit about to be harvested and on vegetables such as lettuce, peas, etc. Any tobacco spray has its effect greatly increased by the addition of soap. Soaps made of cresylic acid, sold on the market as "lysol" or "cresol," have the property of liberating nicotine. If they are added to the tobacco sprays they will permit a greater dilution of the tobacco. However, in the case of Black Leaf 40, which is nearly pure nicotine, they are no more valuable than ordinary soaps. Fish-oil soap, whale-oil soap, common laundry soap, or even washing powders, may be used in combination with the tobacco sprays at the rate of about one pound of soap to every fifteen gallons of the spray. Most insects have a greasy body. The tobacco spray should wet them in order to kill them. A water spray will not adhere to the insect's body, but the addition of the soap makes the spray adhesive and also makes it have greater penetration.

The tobacco spray is particularly adapted as a summer spray. It is extremely valuable for all kinds of aphids, including those species affecting house plants. The woolly aphid, black cherry aphid, the various species of green aphid, the leaf-hopper, red spiders, flea beetles and the young scale insects all can be controlled by this spray. This makes probably the best spray for oyster-shell bark louse, and should be given for that insect as soon as the young hatch, which is usually about the first of June. Although primarily a contact spray, the tobacco kills partly by suffocation. For this reason it surpasses the other contact sprays, like kerosene emulsion or whale-oil soap. After an aphid has curled a leaf it is difficult to control it with kerosene emulsion, for the curled leaf keeps the spray from touching the aphid's body. A drop of tobacco spray, however, in the leaf will give off fumes which will prevent the breathing of the aphid, and thus can be depended upon even though the tree may have its leaves badly curled.

Free Apple Pie at Show

Apple pies, baked at the rate of 2,250 per hour in an oven 75 feet long and served by 500 well-known Spokane residents, will be served free on the opening day of the National Apple Show, November 11 to 17. This will be the opening event of the Enakops Jubilee, the amusement feature of the apple exhibition. The apples will first be made into sauce in a huge kettle

TREES AND SMALL FRUITS

That Bring Quick, Heavy and Positive Results

The western section of Oregon where our stock is grown has no equal, considering soil and climatic conditions. We offer a whole-root, non-irrigated tree with a root system that produces what we say above. It is root system that counts with the young tree, and ours make a remarkable growth in irrigated or non-irrigated sections.

Our Stock Spells Success in Every Locality

Our small fruits are large, thrifty, well-rooted transplants. For quick results this is the kind to plant every time.

Italian Prunes

We have a good stock, and they are fine, vigorous trees. Orders should come in immediately. Prunes everywhere are short this season.

SALEM NURSERY COMPANY

416-17 U. S. National Bank Building SALEM, OREGON

Live salesmen can make money selling our stock
ASK FOR OUR CATALOGUE

"Kill the Bugs"

The damage caused by insect pests of various kinds to growing crops is costing the farmer, the gardener and fruit grower many millions of dollars each year, therefore any means that can be devised to exterminate these ravenous little animals is of especial interest. These two illustrations show a new tubular gasoline torch designed especially for this work by The Turner Brass Works, Sycamore, Illinois. It produces a flame sufficiently large to cut off



THE TURNER
The Turner Gasoline Tubular Torch
Used in Killing Chinch Bugs, etc.



THE TURNER
Burning Insect Nests in Trees With the
Turner Gasoline Tubular Torch



No. 101, \$10.00 Net

Capacity, 3 quarts Height over all, 5 ft. 9 in. Diameter, 2 in.
Size of flame at burner, 2 in. Length of flame, 12 in. Net weight, 7 lbs.

the supply of oxygen or air, which is essential to animal life, also enough heat to destroy the animal organism. This new method has been found very effective and has been endorsed by many authorities of agriculture and horticulture.

One illustration shows the new torch in use for killing chinch bugs, locust and similar pests, after snaring them. The other shows the same torch in use for destroying insect nests and orchard pests of various kinds in trees and bushes. The habits of many insects have been studied and means have been found for trapping them as easily as catching rats and mice, and they can be much more easily killed by means of this new Turner Tubular Torch.

This is especially true of the chinch bug, which can be snared in passing from the wheat to the green corn when the wheat is being cut. This torch can also be used very effectively for destroying the eggs, larvæ, etc., beneath the surface of the ground. It is a most effective appliance for killing live potato bugs, cabbage worms, etc., in the garden, also their eggs or the unhatched young. The flame can be applied sufficiently to destroy this animal life and without the slightest injury to the plant itself. It can be used to good advantage in the benery in killing chicken lice, and excellently adapted to farm use for general repairing and other work requiring heat around the farm.

An Egyptian plague of locusts would, of course, be impossible at the present advanced stage of scientific farming; however, the seventeen-year locust and many other insects have been the cause of awful destruction in recent times, and each year the chinch bug, grasshopper, potato bug, rose bug and web worm, gypsy moth and numerous other insects continue to destroy and reduce the crop and income of the American farmer. By means of this new appliance, the damage caused by these bugs can be reduced considerably and the bugs in time entirely exterminated. *

weighing 1,890 pounds. Gas will be used to cook the sauce, it being estimated by experts of the Spokane Gas Company that 48,670 cubic feet of gas per hour will be required. Five hundred bushels of apples will be cooked at a time. When enclosed in the crust, the pies will be placed on an endless

chain in the bake oven. Eduardo Raman, chef at Davenport's, and A. N. Cantril will direct the cooking, while the populace will be served by leading men of Spokane as waiters. It is expected this novel undertaking will give the apple still greater favor as the king of fruits.—Contributed.

WALNUTS FRANQUETTE MAYETTE

Grafted on Hybrid California Black
SUNSET NURSERY, SAN JOSE, CALIFORNIA

For Sale

Eighty-acre fruit farm; 40 acres in winter apples; family orchard of cherries, peaches, plums, pears, apples, walnuts, in bearing. Eight-room dwelling, storage house, barn and other buildings in fine condition. Spring water under pressure. Near school. Healthful climate. Two miles from Lyle, Washington, on the Columbia River. \$200 per acre; terms to suit. FRANK MOORE, owner, Lyle, Washington.

J. M. SCHMELTZER, Secretary

HOOD RIVER ABSTRACT COMPANY

HOOD RIVER, OREGON

ABSTRACTS INSURANCE
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Vehicles and Agricultural Implements

THE BEST OF
ORCHARD AND GARDEN TOOLS
A SPECIALTY

Gilbert Implement Co.

HOOD RIVER, OREGON



2984

Successful farmers in Oregon alone are using and recommending the

Simplex Separator

Easiest to clean; closest skimming; most sanitary; easiest running; simplest and longest wearing separator on the market.

Write today for FREE catalog S28.

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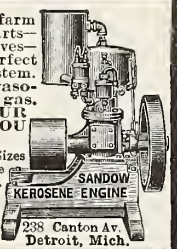
A full line of Dairy and Creamery Machinery and Supplies.

Sandow \$ 42.50 2½ H.P. Stationary Engine — Complete

Gives ample power for all farm uses. Only three moving parts—no cams, no gears, no valves—can't get out of order. Perfect governor—ideal cooling system. Uses kerosene (coal oil, gasoline, alcohol, distillate or gas. Sold on 15 days' trial. YOUR MONEY BACK IF YOU ARE NOT SATISFIED.

5-year ironclad guarantee. Sizes 2½ to 20 H. P., at proportionate prices, in stock, ready to ship. Postal brings full particulars free. Write for proposition on first engine in your locality. (160)

Detroit Motor Car Supply Co.,



SANDOW
KEROSENE ENGINE
238 Canton Ave.
Detroit, Mich.

Editor Better Fruit:

Knowing how interested you are in getting facts on new and improved methods and operations in orchard work, I feel that the experience of Mr. G. E. Browne, president of the Spokane Apple Orchards, this last season, might be of interest to you.

He has a 700-acre apple orchard, which was a source of anxiety and trouble to him in order to get it properly cultivated. Conditions required that this orchard should be ceaselessly worked, day in and day out, through the spring and summer months, that all available moisture should be conserved for the nourishment and growth of the trees. All methods tried, horses and tractors of various kinds, were unsatisfactory.

His troubles were over the moment he put a Caterpillar at work in this orchard. Here he found a tractor so entirely different in construction and operation that the work of cultivating this large tract of 700 acres became an easy calculation. The soil was kept loose and pliable, the labor question was solved, no large barns and care of teams was necessary, and the work was rushed through the dry, hot season when it was most needed, without any sympathy wasted on horses or men.

This 700-acre orchard has been covered between the months of May and September fourteen times; in all, 9,600 acres, at a cost of 26 cents an acre, including interest on the investment and depreciation. This Caterpillar traveled 3,900 miles in cultivating this acreage and was exhibited at the Spokane Interstate Fair, having on it the original track with which it started work.

At the Salem State Fair the 45-horsepower Caterpillar run for two seasons by the Fargo Orchard Company on their 500-acre orchard at Fargo, Marion County, Oregon, at an expense of \$50 for the two years for repairs. This Caterpillar was shown with its original track at the Salem State Fair, and it is estimated that it has traveled 3,500 miles in the last two seasons.

A still better showing than either of these two Caterpillars has been made by the 45-h.p. Caterpillar owned and operated by the Schmitt Brothers of Creswell, Oregon. This Caterpillar has, in addition to having taken care of more acreage than either of the Caterpillars referred to above, built several miles of city streets and county roads, and is now at work on a four months' contract hauling elevator graders. It will be continuously employed at this work for the four months of the winter season.

The experience of the owners of these three Caterpillars, operating under entirely different conditions in widely separated sections of the Northwest, prove conclusively that the problem of caring for large orchards properly, promptly and economically has been solved.

I desire at this time also to put myself on record as to the worldwide circulation of your publication. I base this statement on the answers we have received to the advertisement that has been running in your paper. We have had very recently letters from England, Nova Scotia, a number of the Eastern states, and even from far-away New Zealand, all mentioning having seen the advertisement of the Caterpillar in "Better Fruit." Yours truly,

J. W. HILL.

SCIENTIFIC FARM MANAGEMENT

How the New Era of Economy Has Reached the Agricultural Interests and What It Means

To the careful observer there can be no doubt that the era of scientific management is extending to every branch of industry, and that it has come to stay. Every type of industry, no matter how well known are its methods of procedure or how simple its operation, is concentrating all its energies on the saving of a cent here and there in its raw materials, in its methods of production, and in its means of distribution. There is a vast field for wise economy in the farm of today, and the progressive farmer is taking advantage of it, and slowly but surely is forging ahead of his "old-fashioned" neighbor. The mere temporary saving of money is not the aim of scientific management. It is the permanent saving that the shrewd one is looking out for. A farmer would not think of buying pitchforks merely because they were ten cents cheaper than another brand, if the less expensive pitchforks broke under more than ordinary strain. What possible economy could there be in that? The progressive farmer has realized that he must take advantage of every real improvement. If he doesn't do it, some of his neighbors will, and he will be left behind. Take, for instance, the big item of roofing for all his buildings. He has found that the use of present-day short-lived shingles is little short of a sheer waste of money. So naturally he looks for roofing in keeping with the economy of the times. It is

RIFE RAMS

Water in Your Orchard

or fruit patch saves time and labor. Get all you need from an automatic Rife Ram.

Costs little to install—nothing to operate. Raises

water 30 feet for every foot of fall.

Land lying above canal or stream supplied with water. Pumps automatically day and night, winter and summer. Fully guaranteed.

If there is a stream, pond or spring within a mile write for plans, book and trial offer, free.



RIFE ENGINE CO.

2525 TRINITY BLDG. NEW YORK

Rogue River Valley, Oregon

10 acres pears, 3 years old, \$4,000—includes all care and cultivation for 3 more years. One-fifth cash, no interest; money refunded at any time before final payment if unsatisfactory. Write for particulars to W. C. EARLE, Owner, 314 Couch Building, Portland, Oregon.

PEDIGREE TREES

WILL PLEASE YOU

It is a Decided Advantage for Fruit Growers

to know for a certainty that the trees they plant are propagated from the best bearing trees in the Northwest.

Write for CATALOGUE, Selected Trees of Certified Pedigree.

Ballygreen Nurseries

Hanford, Washington

A FINE CHANCE

To get experienced man (horticultural graduate) to develop large orchard tracts on salary or profit-sharing basis. Splendid references. Box 174, Forest Grove, Oregon.

not surprising, therefore, that we find the progressive farmer using Genasco Ready Roofing. We learn that he adopts the "show me" attitude, and satisfies himself of the relative merits of various roofings before he makes a choice. When he discovers, by means of the convincing "Good Roof Guide Book," issued gratuitously by the Barber Asphalt Paving Company, Philadelphia, that Genasco is made of Trinidad Lake asphalt, the lasting water-proofer of Nature, it is not difficult to see why he decides that this is the roofing for him. He knows that it means absence of repairs, saving of time, and the stopping of money-leaks in covering his buildings. Thus, he is able to economize considerably on this one item alone. And this is only one illustration of the way the up-to-date farmer profits by scientific management. *

Editor Better Fruit:

I have before me your September issue and I want to congratulate you on the excellent appearance, also the large amount of very desirable advertising, making it a very complete looking publication. Yours very truly, P. V. Troup, of Lord & Thomas, Chicago.

CHEEK-TO-CHEEK GRADING



EVENTUALLY YOU WILL WANT OUR ADDRESS

SCHLENGER FRUIT GRADING MACHINE CO.
OGDEN, UTAH.

YAKIMA COUNTY HORTICULTURAL UNION

NORTH YAKIMA, WASHINGTON

E. E. Samson, Manager

A selling organization with a successful history of twelve years. Composed of the oldest and most experienced growers in Yakima Valley.

Specialists in picking, packing and selling. The buyer receives the benefit, and knows that

Our "BLUE RIBBON" and "RED RIBBON"

Brands are standard on the best markets, and an absolute guarantee as to quality and pack.

Your trade will want apples for the holiday trade; they will want the best. Yakima apples are that kind.

Carloads of the best varieties are stored at convenient Eastern points, so that we can make prompt deliveries of your orders.

TREES

WE GROW EVERYTHING THAT GROWS

It makes no difference what you may want to plant—we can supply you. In our immense nurseries, comprising over 1,900 acres, we grow everything that grows. Fruit trees, ornamental shrubs, plants, palms, roses, berries, grape vines, etc.—all guaranteed true to name, carefully dug and packed for shipment in "Al" shape.

We call special attention to our magnificent collection of

APPLES	PEARS
APRICOTS	PEACHES
ALMONDS	LEMONS
OLIVES	ORANGES
PLUMS	POMELOS

and a fine assortment of hardy field grown Roses.

BURBANK'S LATEST CREATIONS

We are authorized commercial propagators and distributors for Luther Burbank's latest fruit introductions. There are some new and particularly fine novelties that we have been growing for this season's trade and will be glad to furnish full information upon request.

LET US KNOW YOUR PROBABLE REQUIREMENTS

It will pay you to get in touch with us at once and let us know what your probable requirements will be for the season—or send us your list for prices.

SEND FOR OUR BOOK

"CALIFORNIA HORTICULTURE"

the fruit growers' guide. Contains 120 pages profusely illustrated, describes over 2,000 different varieties of trees and plants. Contains valuable suggestions on planting, pruning, etc. Price 25c postpaid. Write for it today.

PAID UP CAPITAL \$200,000.00

FANCHER CREEK NURSERIES
GEO. C. ROEDING, PRES. AND MGR.
Box 10 Fresno, California

The Bridge-Graft

By H. J. Baade, Missoula, Montana

GRAFTING in its more usual forms is familiar to all horticulturists, but the bridge-graft is a special form which is not so common; therefore the purpose of it, how to make it and use it, is not so widely known as it should be. Any person who has trees and shrubs to care for, whether on a small or large scale, should know how to perform this very simple operation. Quite often trees and shrubs are girdled by orchard pests before the owner is aware of their presence. This girdling may occur above ground, which is usually done by rabbits, hogs or goats, and below the soil surface, where the gnawing or girdling is most frequently done by gophers and meadow-mice, the latter doing the damage the more frequently. When the trees are found to be girdled they can be saved by one of two ways. If the bark is not all peeled off soil may be heaped about the stem to cover the wound; in this way quite a few trees have been saved. But if all the bark is destroyed so that there is no chance for the tree to recover by the first method, then bridge-grafting must be used to save the tree.

The bridge-graft is made by trimming the edges of the girdles to the fresh, firm tissue, inserting scions which are twigs taken from the injured tree, whittling them wedge shaped at each end, inserting one end under the bark above and the other under the bark below the girdle. Care should be taken to have the cambium or inner layer of the bark of the scion come in close contact with the inner layer of the bark of the tree. Bandages should then be put around these insertions so as to hold the free edges of the bark and the ends of the scions in place. Grafting

wax should then be put over the work to keep out air and bacteria. This operation is performed in spring, for it is at this time of the year that the girdles are usually discovered. If, however, girdled trees are found during the summer or early autumn the operation can be performed at that time, and if carefully done will prove successful. If the injury is on the roots or at the surface of the ground the waxing may be omitted by covering the graft with earth. If the scions are placed close together they will soon unite along their sides and make a continuous covering of the wound. When a tree is found to be girdled in spring or the growing season no time should be lost

HANFORD NURSERIES

Clarkston, Washington

Buying Nursery Stock
is like buying anything
else—YOU PAY FOR
WHAT YOU GET.

HANFORD TREES

HAVE STOOD

The Test for 20 Years
Buy Them

Announcement:

By an arrangement with the Vineland Nurseries Co. we are pleased to announce we can furnish a limited number of the

RED GRAVENSTEIN

No apple in years has attracted as much favorable attention and comment. In a letter dated August 19, 1912,

Prof. W. S. Thornbur says:

"I believe that it is bound to become one of the very Popular, valuable apples of the Pacific Northwest."

Our Prices Are Right
Our Stock is Right
Write for Catalog

HANFORD NURSERIES

Drawer 4 Clarkston, Washington

AGENTS WANTED

OTWELL'S TREE PAINT

(PATENTED)

For Winter Use

IF you ever had any experience with rabbits, field mice or other winter tree pests, you don't need any warning, but if you haven't—look out! One rabbit can do more damage in a single night than the cost of protecting your entire orchard.

Those who have tried to protect their trees with corn stalks, old rags, newspapers, screens, manufactured devices, axle grease, etc., know how unsatisfactory they are—taking a lot of time to apply and often doing more damage than they prevent.

The safe, sure and reliable method of protecting your trees during the winter is by applying OTWELL'S WINTER TREE PAINT.

It has proved itself in thousands of orchards throughout the country—has been the old stand-by of orchardists for many years.

It contains no oil or grease—nothing to harm any tree. It is simply a powder which you mix with water and apply with an ordinary clean paint brush. A boy can paint one tree per minute—a large orchard in a day or two.

Here are two letters taken at random from among hundreds received from satisfied users of Otwell's Winter Tree Paint. Names furnished on request:

"I painted about 4,000 trees last fall and I found the bark fine and smooth up as high as I painted—nothing disturbed the tree."

"Your paint used on about 300 of my young apple trees last fall not only kept the rabbits from gnawing, but also kept the borers away, and I have noticed no bad effects from the use of it."



Otwell's Winter Tree Paint, besides giving your trees absolute protection against rabbits, benefits them in other ways also. It makes the bark grow smooth instead of rough and scaly.

It is a partial protection against cold and sudden changes of weather. Thousands of trees have been saved by it.

It destroys the eggs of tree enemies,—borers, lice, etc.

In the spring it is carried to the roots by the showers of rain and acts as a powerful fertilizer.

Put it on just before it freezes in the fall. It may save you hundreds of dollars.

Price \$1.50 per gallon size or 80 cents per half gallon size. One gallon will cover 300 trees of average size. Are your trees worth half a cent each?

If you can't get Otwell's Tree Paint from your dealer, write for free literature to the nearest distributor, if there is one in your vicinity in the following list. If not, write us direct.

W. P. FULLER & CO., San Francisco, Sacramento, Los Angeles, San Diego, Pasadena, Oakland and Stockton, in California; Portland, Oregon; Seattle, Tacoma and Spokane, in Washington; Boise, Idaho.

Missoula Mercantile Company, Missoula, Montana.
Kalispell Mercantile Company, Kalispell, Montana.
Parchen Drug Company, Helena, Montana.
Bennett Glass & Paint Company, Salt Lake City, Utah.

Ogden Paint, Oil & Glass Company, Ogden, Utah.
McMurtry Manufacturing Company, Denver, Colorado.
Pimbley Paint & Glass Company, St. Joseph, Missouri.
Brown Camp Hardware Company, Des Moines, Iowa.

Patents controlled and paint manufactured exclusively by

Minnesota Linseed Oil Paint Co.

1103 Third Street S., Minneapolis, Minnesota

in making the graft, for if the injured bark becomes dry the chances are that it will be saved with great difficulty, if at all. When completing the operation of grafting the tree should be cut back to prevent excessive evaporation of cell-sap, and therefore undue strain on the newly-uniting tissues. I have used this method of grafting in a five-year-old apple orchard where fully eighty per cent of the trees had been girdled by meadow-mice and saved about ninety per cent of the injured trees. It is a very simple operation and can be successfully performed by anyone who is willing to do the work carefully.

To Increase Farm Products \$10,000,000

That the annual agricultural productions of this state could be increased \$10,000,000 in five years without adding one square rod to the farm acreage was the contention of Dr. James Withycombe, director of experiment stations at the Oregon Agricultural College, in a recent address on the value of demonstration farms. He advocated the establishment of a demonstration farm in each county under competent supervision, the superintendent to act as adviser to the farmers of his district and to assist in the formation of rural organization for the improvement of educational, social and financial conditions. "In many foreign countries the value of demonstration farms and special agricultural educational work is strongly in evidence," said Dr. Withycombe. "The little country of Denmark has made phenomenal agricultural progress under the system of demonstration instruction. With an area equal to but one-sixth of Oregon, Denmark supports 2,690,000 people and exports annually over \$100,000,000 worth of butter, eggs and bacon. This is accomplished under adverse agricultural conditions, much of the country being so bleak that it is necessary to blanket the cows in pasture to keep them comfortable in summer. If such results can be secured under such unfavorable conditions, what results might we not justly expect from a similar system here in Oregon, where conditions for dairying and general farming are so favorable?"—Contributed.

They Do Things in Idaho

During a recent trip from Payette to New Plymouth, in company with Mr. E. C. S. Brainard, a fine opportunity was afforded to study the orchards of the Payette-Fruitland district. On the route we passed the forty-acre black raspberry plantation of Mr. M. B. Sherman. This gentleman has developed machinery with which are cut the canes loaded with ripening fruit. The fruit then dries on the canes, which are pitched on racks, hauled in and threshed. The dried product sells for \$250 to \$300 per acre. Mr. Sherman has a similar plantation near Twin Falls, Idaho, where the fruit ripens about three weeks later, thus enabling him to

Yakima Valley Grown Stock

IS ACKNOWLEDGED SUPREME EVERYWHERE

Do you know why our trade has increased so largely and why our trees meet with so much praise? It's the climate, with its long growing season; our soil, which is a rich volcanic ash underlain by a gravelly subsoil, thus insuring perfect drainage; and lastly, because we know our business thoroughly and work at it every week in the year. We are not part nurseryman and part orchardist, as so many are. Our sole occupation is growing and selling the best class of trees that can be grown.

Don't take chances by placing your order with some fly-by-night concern. Buy where you know you will get value received. Send for our large catalog. It's free. Ask about our guarantee.



Yakima Valley Nursery Company

"The Nursery that has Made Good"

More Salesmen Wanted

Toppenish, Washington

ship the needed machinery to Twin Falls after harvesting his crop at Payette.

The apple orchards along the way are very heavily laden. The packing of Jonathan apples opened the seventeenth of the month at the plant of Sargent & Burnett, near Fruitland. The products of this orchard will be mostly marketed in Germany, at a price that is expected to return \$1,000 per acre. The first and second grades are wrapped in soft paper, on the center of which appears the firm name printed in red ink—"Sargent & Burnett, Red Apple Ranch, Fruitland, Idaho." Each apple is placed in such manner that the printed form shows uppermost when the box is opened. Such apples as are not suitable for first and second grades, but are of fair size, are sold to the evaporator nearby for six dollars per ton. Small apples go to their own vinegar factory, in which they ultimately return from sixteen to twenty cents per box.

At the B. F. Tussing orchard we found them getting up an exhibit for the Payette fair. Two years ago an average of 1,209 boxes of apples per acre was packed in this orchard. This crop sold for \$1,469.56 per acre, with net returns over all expense of growing and packing of almost \$1,000 per acre. This season it is estimated that the crop is equal in quantity to that of 1910, but having been contracted at \$1.10 per box for first and second grades in all varieties it will not net quite as much per acre as the 1910 crop. Up to September 17 two hundred and fifty cars of fruit had been shipped from Payette this season. When the winter apples have finally been marketed a good sum of money will have been placed in circulation.—E. F. Stephens, Nampa, Idaho.

Development League Statistics

The Idaho-Washington Development League, embracing five counties of Idaho and three of Washington, has gathered extensive statistical data covering practically all features of production and development in the league territory. These facts will form an important chapter in a general publicity booklet soon to be issued for broadcast distribution. On the subject of fruits, the report gives the number of fruit trees planted as follows: Nez Perce County—Apples, 817,500; peaches, 220,000; pears, 64,000; cherries, 60,000; grapes, 550 acres. Latah County—Apples, 116,250; peaches, 8,000; prunes, 32,000; cherries, 16,000. Idaho County—Apples, 372,000; peaches, 60,000; pears, 112,500; cherries, 30,000. Clearwater County—Apples, 5,600; peaches, 5,000; pears, 22,500; cherries, 4,000. Lewis County—Apples, 84,000; peaches, 8,000; pears, 52,500; cherries, 10,000. Asotin County—Apples, 124,148; peaches, 127,525; pears, 14,350; plums, 16,244; apricots, 5,220; cherries, 40,429. Whitman County—Apples, 126,294; peaches, 93,000; pears, 8,458; plums, 30,785; apricots, 6,595; cherries, 10,675.

Free Fruit Land at Paisley, Oregon

Don't Be Afraid of U. S. Government Carey Act Irrigation Projects in Oregon

The day of irresponsible irrigation companies in this state is past. When the Northwest Townsite Company of Philadelphia took over the Paisley project in Lake County, it gave the largest bond ever given in the state—fifty thousand dollars—guaranteeing completion of the project. Every three months it makes an itemized statement of expenses to the Desert Land Board. All of its advertising books, maps, contracts, subscription agreements and literature are submitted to the Desert Land Board for inspection before being issued.

THE LAND IS LEVEL, FREE FROM ROCK, AND IS A RICH VOLCANIC ASH SOIL. The climate is perfect for fruit, which now grows to perfection at Paisley.

Apples, Peaches, Plums, Pears, Prunes

Construction work upon the dam and reservoir has now been in progress for three months, with Thomas Hawthorn, State Inspector, on the ground. He was formerly with the U. S. Government Reclamation Service on the Umatilla project.

Send for 32-page illustrated book. Go to Paisley by automobile stage from Bend or from Lakeview, and see the land. Our agent at Paisley, Hugh K. Gilmore, will show you the land. It is free to those who pay the cost of putting water on it.

The Northwest Townsite Company is among the largest taxpayers in Oregon, owning townsite subdivisions at Princville, Madras, Redmond, Bend, Burns, Vale, and also the 840-acre Conn ranch at Paisley, including a fifty-barrel-a-day capacity flour mill and a general store.

Our bank references are:

First National Bank, Philadelphia, Pennsylvania.
Girard National Bank, Philadelphia, Pennsylvania.
Commercial Trust Company, Philadelphia, Pennsylvania.
Interstate Finance Corporation, Philadelphia, Pennsylvania.
Merchants Trust Company, Camden, New Jersey.
Security Savings & Trust Company, Portland, Oregon.

Address all communications to our Portland office, 601 Yeon Building. Write now. The average cost of water will be \$46 an acre. We will give you a square deal.

Northwest Townsite Co.
308 Chestnut Street, Philadelphia, Pennsylvania

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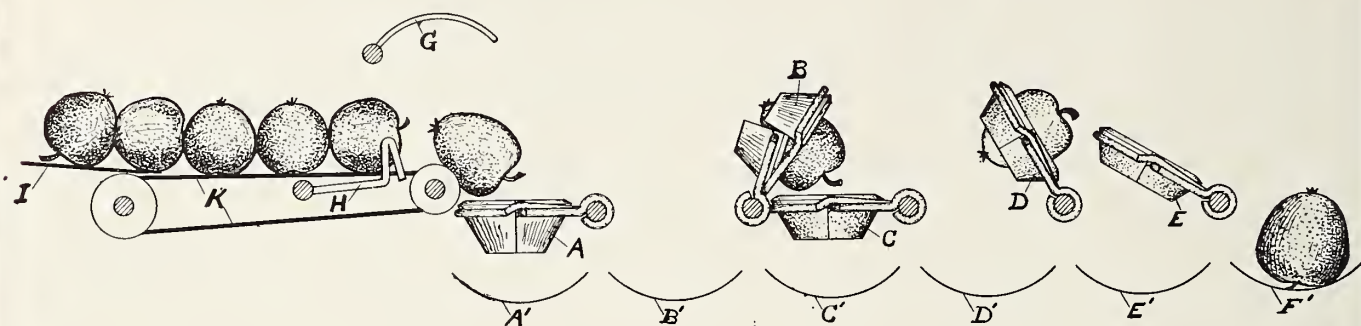
Wholesale and Retail—Sixteen years in the business

We offer for fall and spring 1912-13: Apple, pear, cherry, peach, apricots, plums and prunes of the leading varieties adapted to this locality. These are all grown on No. 1 whole roots from buds and scions selected from the best bearing trees in Hood River, hence we are in a position to not only guarantee our trees true-to-name but of the best bearing strains. Commercial orchard plantings our specialty.

If interested write us; we have what you want.

Address **TRUE-TO-NAME NURSERY** Hood River, Oregon
Phone 2002K

Schellenger Fruit Grading Machine



Have you seen the endorsements of those who used the Schellenger Fruit Grading Machine during the 1911 packing season? We publish a list of them in our free book entitled *Modern Methods of Grading and Packing Fruit*. Every machine gave entire satisfaction because they did the work with mechanical accuracy and made money for their owners.

You can absolutely rely upon getting these same results for yourself. No doubt is involved. WE GUARANTEE IT.

*This machine will put your orchard on a paying basis
Hadn't you better look them up?*

EVENTUALLY YOU WILL WANT OUR ADDRESS

Schellenger Fruit Grading Machine Co.

References: Our customers

OGDEN, UTAH

Apples Run Large this Season

The big red apple has always been the popular one with the small boy. Send him down cellar to get himself an apple and he appears with the largest one in the barrel. This, however, is not the case with the market man. He has a definite idea as to what should constitute the proper size for a commercial apple. He demands an average-sized fruit—not the runty one or the overgrown monstrosities. Professor H. B. Van Deman, who is to judge the 1912 apple show, says: "The markets rarely demand large apples, nor are very small ones desirable. The highest prices are usually paid for those that are from two and one-half to three

inches in diameter and will pack 88 to about 140 to the bushel box, or in three and one-half to four and one-half tiers. An 80 box is beyond the pale of the first-class award and below 140 is passed on the other side. The reason for this discrimination against the large apple is easily seen. The hotel and restaurant keepers do not want to put half an apple on the plate and an average person cannot eat a whole one of those large apples. Very large apples, such as the Tulpohocken and Wolfe River, and very small ones like the Lady and Pomme Grise are in a class by themselves and are for the special trade. In all our judging we follow this commercial line and decide that when an apple goes beyond a cer-

tain size it should be condemned on the score card." Growers who expect to exhibit at the coming apple show should take heed of Professor Van Deman's warning and select only those specimens which are typical of the variety in size as well as other characteristics. This season Indiana grown fruit runs extra large and the temptation to select the overgrown specimens will be great. The day of the county fair exhibits of monstrosities is past. We must now exhibit what the trade demands.—Bulletin Indiana Apple Show Commission.

The Milton Nursery, of Milton, Oregon, has completed mailing a very attractive catalogue. They have prepared a very attractive cover.

Lime and Sulphur

Pure, Strong and Free from Sediment

Lilly's Lime and Sulphur is guaranteed to be as highly concentrated as it is possible to make. Every can and barrel is tested and the strength stamped on the label so that you know exactly what to use. Price List and Spray Book sent on request.

Lilly's Spray Book contains much information on Diseases and Pests and how to treat them.

The Chas. H. Lilly Co.
SEATTLE, WASH.



Growers of a full line of nursery stocks, etc. Apples, pears, prunes, peaches and cherries. Send in your want list and secure prices.

CARLTON NURSERY CO.
Carlton, Oregon

Northern Grown Trees Do Not Winterkill

SPECIAL PRICES FOR
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Box 418
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Back Files, Volumes and Single Copies of "Better Fruit" for Sale

Ever since we began the publication of "Better Fruit" we have had a continued demand for back volumes, and single copies to complete files. These requests have been filled promptly where possible and we have been pleased to help complete many files. The requests continue, and we have bought up a great many back numbers, added what we have on hand, making a limited number of complete files, volumes and single copies, from Volume I, Number 1, July, 1906, to date. The list below shows what we have on hand at this time and quotes prices:

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| 4 complete files, July, 1906, to October, 1912, each | \$25.00 |
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1911 copies (except March), in perfect condition, 20 cents each.

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Each and every number of "Better Fruit" contains the most valuable and instructive information which can be secured on the subjects treated. There is no set of books or complete files of any horticultural publication which give the practical and valuable information that the fruit grower wants as it will be found in these back editions of "Better Fruit." Every edition is printed on high quality book paper, the most expensive cuts are used to illustrate every practical feature in orcharding. There is nothing published which illustrates so thoroughly or completely every phase and feature of the fruit business.

We have had many requests from different experiment stations, prominent horticultural men and public libraries for back volumes and back copies of "Better Fruit," which we have filled without charge. In order to meet further demands we have bought up all available back numbers and are offering them at the prices quoted above, which is a remarkably low figure for the information they contain. A complete file of "Better Fruit" from first issue to date would contain about 469 pages, 9 by 12 inches. The editions of "Better Fruit" published to date average 60 pages per issue, a greater number of pages than have been published by any other horticultural publication in the United States.

The following is a list of the different numbers, with reference to their contents. In the editions devoted to a special subject there is always much general information, but a larger part of the edition is devoted to the specially mentioned subject.

- | | |
|--------------------|------|
| July—General. | 1906 |
| August—General. | |
| September—Packing. | |
| October—General. | |
| November—General. | |
| December—General. | |

- | | |
|-------------------------------|------|
| January—General. | 1907 |
| February—Walnut Special. | |
| March—Association Special. | |
| April—Codling Moth Special. | |
| May—General. | |
| June—General. | |
| July—General. | |
| August—Wenatchee Special. | |
| September—Packing Special. | |
| October—Nurserymen's Special. | |
| November—Labeling. | |
| December—Orchard Management. | |

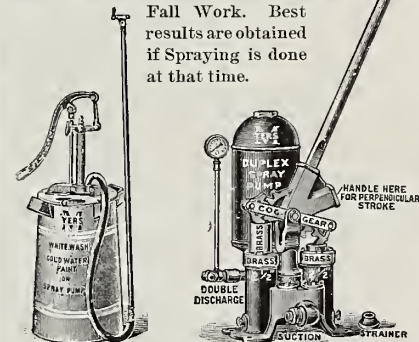
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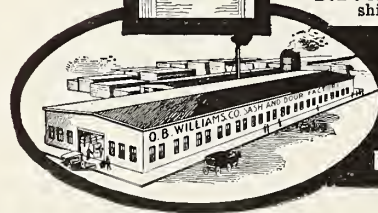
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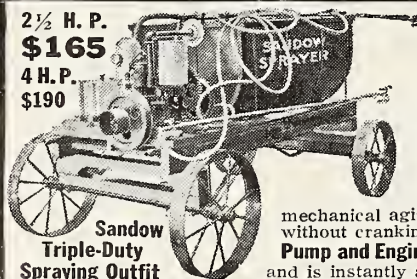
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 Spraying Outfit

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Engine is Simplest, Most Powerful Made

Connected to powerful spray pump by patent
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Price includes tank wagon with shafts, agitator, high-duty spray pump, gauge, relief
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1908

January—General.
 February—Yakima Valley Special.
 March—Hood River Special.
 April—Grape Special.
 May—General.
 June—Small Fruits Special.
 July—Peach Special.
 August—Cherry Special.
 September—Packing Special.
 October—General.
 November—Wenatchee Special.
 December—Planting, Pruning and Grafting.

1909

January—Kennewick (Washington) Special.
 February—National Apple Show.
 March—Small Fruits Special.
 April—Spraying and Fruit Insects.
 May—Colorado Special.
 June—Peach Special.
 July—Alaska-Yukon-Pacific Exposition.
 August—Walnut Special.
 September—Packing Special.
 October—General.
 November—Irrigation.
 December—Planting, Pruning, and Orchard
 Heating.

1910

January—Spokane Apple Show Special.
 February—Spraying Special.
 March—Colorado Apple Show Special.
 April—General.
 May—Rose Festival and Floral Special.
 June—Small Fruits Special.
 July—General—Willamette Valley.
 August—Pear Special.
 September—Packing Special.
 October—Orchard Heating.
 November—General.
 December—Planting and Pruning.

1911

January—National Apple Show Special.
 February—Spraying Special.
 March—Small Fruits Special.
 April—Irrigation.
 May—Floral Special.
 June—Fruit Growers' Garden Edition.
 July—Fruit Shippers and Dealers' Edition.
 August—Association Special.
 September—Packing Special.
 October—Statistical Special.
 November—Orchard Heating Special.
 December—Pruning and Planting.

1912

January—Big Apple Show Annual.
 February—Spraying Special.
 March—General.
 April—Orchard Management.
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Orchard Development in the Spokane Valley

By J. C. Goodman, Otis Orchards, Washington

SPOKANE, the home of the National Apple Show, is famous for its activity in giving publicity to the Western-grown apple, and a great deal has been written regarding the apples exhibited there, but the editor of "Better Fruit" has informed me that he has not yet published an article dealing with the fruit industry in the country immediately surrounding the city itself. It is impossible in this article to give attention to all the fruit-growing districts in Spokane County, so I will confine myself to the Spokane Valley, which lies just east of the city. I was

born in this valley and have always made it my home, therefore I am more familiar with its development than that of other districts in the same county.

The Spokane Valley is approximately thirty-five miles in length, east and west, with an average width of about six miles. It is bounded on all sides by pine-clad hills and mountains. In its natural state it was covered with a flourishing growth of bunch-grass, with no trees or underbrush, except along the Spokane River, which is its drainage source. The main body of soil is a black loam of moderate depth, carrying a high percentage of gravel and with a gravel sub-soil, while along the foothills the percentage of gravel almost disappears, giving place to a sandy loam. It has not been decided which is the better soil for fruit growing, excellent results having been obtained on both.

F. A. Huntley, commissioner of horticulture, in his report on the extent of fruit growing in Washington, gives Spokane County a total of 595,076 apple trees of four years and upward, a greater number than Chelan or Yakima Counties have. At a casual glance it would seem that the trees in our district do not yield the enormous crops nor the fine quality of fruit for which the Wenatchee and Yakima Valleys are famous. Generally speaking apples grown in Spokane County are not as celebrated as those from the other districts mentioned. When we consider, however, that fully seventy-five per cent of the above amount of trees are situated on non-irrigated land the benefits of irrigation become at once apparent. The foothills of the Spokane Valley contain five natural reservoirs, Lakes Liberty, Hayden, Coeur d'Alene, Hauser and Newman. It is from these lakes and from inexhaustible wells that the Spokane Valley fruitgrower derives his water for irrigation, which brings his fruit up to the highest Northwestern standard.

The first orchards planted in the Spokane Valley are now eight years

old and the most of the balance have not reached the bearing period. It is in fact only in the last two years that apples grown on irrigated land have been produced in sufficient quantities for carload shipments. Many of the orchards are now coming into bearing and the apples raised here in future will be found in many of the principal markets of the world. Probably 100 carloads will be produced this year, and possibly more. A great deal of credit is due the pioneer orchardists of the valley. Skeptical old-timers tried to discourage them; sometimes they were

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along similar lines in behalf of the great irrigated fruit districts of the Rocky Mountain region, a companion paper to this, your favorite fruit magazine.

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charged exorbitantly for supplies and labor. For advice they had few to turn to except real estate men and nurserymen, who were mostly interested in their own financial advancement. Despite gross misrepresentations and weary years of waiting until their orchards should bear they still had faith in their investments, and the last two years have begun to realize that an orchard is pretty good property after it begins to produce.

So far the apples have been marketed in various ways. Associations have been formed, with moderate success and prospects for ultimate inter-valley co-operation. Some growers sell to the buyers direct. Most of the apples bought in this way are handled by local firms operating out of Spokane. The apples sold through associations are usually shipped direct to Eastern firms, sometimes on consignment with liberal advance or by outright sale. The average price received for all three grades last season was about \$1.30, and many of the extra fancies sold at \$1.50 and \$1.75. Considering that we do not grow the Spitzenberg, Newtown, Delicious, Winter Banana and Winesap, which usually sell highest, to any extent I think our returns compare favorably with other prominent districts. Many of the growers believe that some of the varieties grown here compare favorably with those mentioned above and that prices will adjust themselves to our satisfaction when the Spokane Valley apple is more firmly established in the market.

The Wagener, Rome Beauty and Jonathan greatly predominate in most of the orchards. This is due to the fact that these varieties were considered best adapted to our altitude, and they certainly achieve great perfection under our climatic conditions. It is my firm conviction that any of the varieties which have been successfully grown in other districts in Oregon and Washington east of the Cascades would prove successful here. This opinion is based on experimental results obtained from the Delicious, Winter Banana, McIntosh Red, Yellow Newtown and others of equal importance. Our average altitude of 2,000 feet and good air drainage, with plenty of sunshine during the growing season, seems to produce abundantly and to perfection most of the commercial varieties.

There are several special advantages favoring the Spokane Valley fruit-grower which are not common to the more arid fruit districts of the state. I would mention among these the natural excellence of the roads, the close proximity to a city of over 100,000 people and to its famous lakeside summer resorts, one of which is usually but a short distance from the grower's home. We find, too, that the evergreen trees make for the beauty of our surroundings and relieve the monotony of scenery during the dormant period of all leaf-bearing trees. Natural precipitation renders irrigation necessary but a few times during the season, which

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reduces somewhat the labor necessary to produce a good yield.

One other important condition about the growing of apples here is their superior keeping qualities. They are in reality ready for consumption at a later period than most of the Northwestern apples of the same varieties. I have spent considerable time in lower altitudes and under more arid conditions, and the difference of maturity has impressed me as being very pronounced among several of the principal fruit districts. It is to be hoped that this difference as well as cold storage will enable the consumer to find the Northwestern apple on the market at all times of the year.

Where Does the Profit Go?

By D. F. Jones, Tucson, Arizona,
Experiment Station

THE other day, being apple hungry, I went in search for some apples at the various fruit stands in town. After a diligent effort the best I could find were some small dull-colored apples that the stand-keeper said were Winesaps, but remembering those bright, rich, red apples of my home days, I could hardly call these Winesaps without offering an apology to the others. But, anyway, he wanted ten cents for three of them. I know that this is late in the season for apples, but the apples were small; a box would easily hold over two hundred. At that rate he was getting over \$6.50 for the box. I don't know where the apples were grown nor by whom, but I am confident that the grower didn't receive over two dollars at the most, and probably not over one dollar. The question is, who gets the \$4.50? The transportation and storage charges are necessary and must come out of it, but how about the remainder—is it all necessary? Just as you say in the August, 1911, number of the "Better Fruit," the retailer is getting too much of that difference. It is this problem that is facing the apple growers.

The remarkable success of the Northwest has started a craze for planting apples all over the United States. You say there is not going to be an overproduction of apples. Perhaps there will not be an overproduction of cheap fruit, but it seems to me that there will be an overproduction of high-priced apples. The man who is going to suffer is the man who owns the trees. Surely a system of getting the fruit to the consumer more cheaply can be devised, and this is the problem that faces the fruitgrower. If the price of apples to the consumer were cut in half the consumption would be multiplied by four or more. I believe it can be done.

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DO YOU BELIEVE IT?

Is 1 equal to 2?

Don't say yes or no until you look over carefully the subjoined algebraic formula, which proves (?) it.

Let $a = x$
Therefore $ax = x^2$
Subtracting a^2 from both numbers
 $ax - a^2 = x^2 - a^2$

Factoring:
 $a(x - a) = (x - a)(x + a)$

Dividing by $(x - a)$
 $a = x + a$

But $x = a$
Hence, $a = 2a$, or $1 = 2$.

Quite simple and complete, isn't it?

Yet nobody believes it, because it is contrary to actual human experience. It sounds plausible, and, algebraically, it is held to be correct.

The only reason we submit the formula is to emphasize a few words we have in mind regarding the marketing of Western boxed apples and other fruits.

Now and then you may hear someone claim, "I can net as high average as Gibson," and "We can secure as quick action as Gibson," etc., which only goes to show that our salesmanship and service is regarded as standard among our imitators—those who indulge the hope they may overtake our long lead in the Western fruit game.

It is possible some enthusiastic solicitor may go the "imitators" one better and try to prove to you that one is equal to two—that is, he can beat Gibson's prices. We say he "may" make such claim. If he does, just draw the above formula on him and tell him to stand back.

Now, gentle reader, please do not jump to the wrong conclusion and think us in the slightest egotistical—we're not. We're simply trying to vindicate the TRUTH ABOUT SELLING WESTERN FRUITS. For years it has been our chief subject for thought. The fact that we were among the very first to break into the game and that we're holding patronage year after year is proof conclusive that our system of selling—not elaborate and extra expensive, but sufficient—is correct. Furthermore, not a man or association whose fruits we've handled can truthfully say we've not been absolutely square with him or them.

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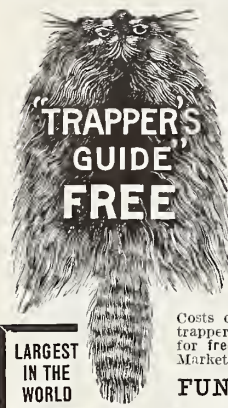
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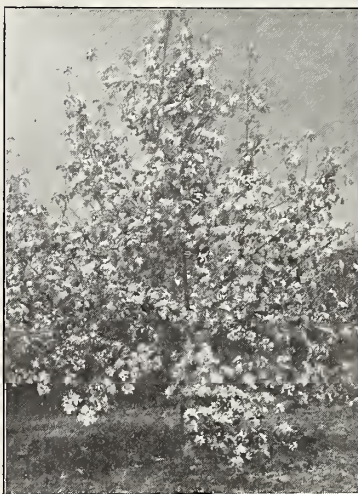


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and the grower receive more for his fruit at the same time.

We blame the retailer, but is the fault entirely his? Take, for example, the conditions in this town of about 15,000 people. Practically all of the fresh fruit is sold from small fruit stands, each run by one man. They are small and the stock of any one of them at any time does not exceed twenty-five dollars. Yet on this small capital he must make a living. The whole fresh fruit business in this town could be handled by one or two stores if the right kind of men were running them, with competent help. The quality and quantity of the fruit sold could be increased. The fruit could be bought in carload lots and placed in storage here, whereas much of it now comes by express. The small retailer does not do enough business to buy to advantage and he cannot reduce his price because he must make a living. In fact I see no reason why the fruit-growers' associations themselves could not run their own retail stores in many of the towns. The greatest drawback would be to get enough variety, but the growers could be encouraged to grow as large a variety as possible and what they could not grow could be contracted for, so as to make the store popular the year 'round. In this way the grower could get in closer touch with the consumer. He could better suit the demand, and by always having a neat and attractive display of good fruit and by advertising the sales could be multiplied many times without a proportionate increase in the selling expense. It seems to me that more of an effort should be made to develop the home markets and those nearer home. What is the use of shipping across a continent when much of the same fruit could be sold nearer home? Perhaps it would not be sold at such a fancy price, but with greater net returns to the grower.

Not only has the Northwest started a great increase in the number of apple trees being planted in other parts of the country but it has taught them how to cultivate, spray, pack and market apples as well, so that there is not going to be an increase in quantity to compete with but also an increase in quality. The central apple-growing section of the United States, Missouri, Arkansas and Kansas, with which I am somewhat familiar, has not produced a full crop since 1896, and especially during the last five years has the loss from frost been heavy. When this section gets back into its prime there will be an even greater increase in production than that due to new plantings. Remembering that they are about seventy-five cents per box ahead of the Northwest on the start in freight charges, it will be seen that this section will be an important factor in the market in the future. While the marketing problem is an important one in all agriculture at the present the fruit-growers, and especially the apple growers, should be especially concerned with it.

The National Apple Show

THE Fifth National Apple Show in Spokane this fall is expected to accomplish one thing in particular which will be of great value to the growers throughout the Northwest. This will be the launching of a thoroughly organized movement to solve the problem of distribution. To secure the result, a conference of growers, city and country bankers, transportation men and business men will be held in Spokane during the apple show, November 11 to 18. In speaking of the plan W. T. Day, president of the Day & Hanson Security Company and chairman of the apple show board of trustees, said:

"The Northwest as an apple-producing district has gained the favorable attention and recognition of the world. It is now incumbent on us to go still farther. What we propose is a conference during the apple show to be participated in by the growers, city and country bankers, transportation men and business men to try to throw some light on the question of distribution. Competent authorities declare there is no danger of overproduction of apples. But we must get a system of distribution perfected, and if the apple show can be of service in this regard it will be performing a great work. The orchardists and buyers themselves have no fear of overproduction and men who are informed as to conditions hold the same opinion. The conference planned should be of great value to the apple industry of the Northwest. It will bring together men representing all phases of the work, and the problems of distribution and financing should be clarified to a great extent as a result."

The trustees have determined to place the apple show on a permanent footing, and have named a board of governors containing representative men of every apple district in the Northwest, as well as Governors Marion E. Hay of Washington, Oswald West of Oregon, James H. Hawley of Idaho and Edwin L. Norris of Montana, and the lieutenant governor of British Columbia. Mr. H. C. Sampson, a man widely known throughout the Northwest, has been elected vice president and general manager of the show, and has started active preparations for the event. Mr. Sampson has attained marked success as a business man and is thoroughly conversant with the Northwest apple industry. Leading

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All of your time, labor and money may be wasted, or at least, results will be greatly reduced, if you do not recognize the importance and absolute necessity of preparing to market your crop to the very best advantage.

Presumably you now have bearing fruit trees, perhaps in sufficient quantity to load straight carloads, or perhaps you may belong to a shipping association. In either event, you are interested in avoiding "crooked Commission Merchants" even more so than avoiding "crooked trees." There are plenty of reliable Commission Merchants to whom you can sell, either "cash f.o.b. shipping point," or "sight draft on shipper's order bill of lading with privilege of inspection" at destination, or consign. No matter which of these terms the supply and demand makes possible or necessary, you need our Organization's Credit Book to get in touch with reliable dealers, and should you make long distance shipments, you very likely will need the assistance of our Adjusting Department, which has qualified adjusters in every city to which your shipments may go. It is a fact that the majority of the large and successful shippers of fruit all over the United States are now satisfied Members. Is this not alone the sum of all reasons why you should adopt, or at least investigate the system?

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BEALBY, Nelson, B. C.

business men of Spokane have rallied substantially to the cause of the apple show and during the last few days have pledged an additional \$8,000, thus insuring a \$42,000 show for this fall. The following individuals and firms have been active in the work of the last few days: D. C. Corbin, president of the Spokane International Railway; Jay P. Graves, former president of the Spokane & Inland; D. W. Twohy, president Old National Bank; Thomas H. Brewer, president Fidelity National Bank; A. F. McClaine, president Traders National Bank; R. B. Paterson, president Spokane Dry Goods Company; Mose Oppenheimer, Arthur D. Jones, Fred B. Grinnell, W. H. Cowles, J. D. Sherwood, W. S. Norman, Harry A. Flood, president Trustee Company; A. N. Cantril, manager Spokane Gas Company; R. R. Rogers, of the Vermont Loan & Trust Company; F. M. March, president National Bank of Commerce; John W. Graham, Eilers Piano House; L. M. Davenport, Jones & Dillingham; Edwin N. Robinson, president Arcadia Orchards Company; Kelley-Clarke Company, F. J. Finucane, vice president Holley-Mason Company; M. D. Hall, vice president Grote-Rankin Company; J. C. Barline, president Washington Mill Company; Percy P. Powell, of Powell-Sanders; M. B. Connelly, Albert Held and David Brown.

Educationally, the apple show this year will be made exceedingly effective and beneficial. Over and above the advantages the growers will receive from personal contact with other growers who are successful, no pains will be spared to bring expert and practical knowledge to their notice. All this has been accomplished in the perfection of spraying apparatus, and, in fact, all kinds of orchard machinery will be there for display and demonstration. Going still farther into the field of education, it is the plan of the trustees to show how much greater returns can be had by the utilization of orchard by-products. They would like to have an evaporator on display, a jelly plant, a cider plant, and any other things which make use of the by-products. And the amusement features also will not be lost sight of in the general plan of making the apple show more useful. Still greater efforts will be directed this year toward securing attractive displays of apples. Nothing will be spared to exhibit the apples in an artistic way, for this is a feature that is pleasing not only to the growers, but one that excites a wider interest in the apple on the part of the general public.

The Elliott Nursery, of Pittsburg, Pennsylvania, have issued their fall catalogue for fall planting. Bulbs and peonies are specialized in this edition.

WANTED A good, reliable and competent nursery foreman for centrally located nursery of three hundred acres. Will pay good salary to right man. State qualifications, salary expected, if you have a general knowledge or have specialized, etc. No attention will be given inquiries not accompanied by reliable references. M.-C., care "Better Fruit."

One Thousand New Cars

One thousand new refrigerator cars, equipped with the new collapsible tanks with a capacity of 11,000 pounds of ice, will soon be delivered to the Pacific Fruit Express Company, a subsidiary of the Southern Pacific Company. The collapsible tanks will enable the company to use the cars for ordinary freight during the periods that the cars are not required for perishables. The first installment of these new cars will be started westward within thirty days and they will immediately go into service. This order of 1,000 new cars is an increase of 10 per cent and makes the total refrigerator equipment of this company 11,000 cars. The latest refrigeration ideas have been adopted in the building of the cars and a most effective insulation will line the interiors. Five years ago the Pacific Fruit Express Company had 6,600 of these cars, but the growing fruit and produce business of California, Oregon, Washington, Idaho and other Western states has caused nearly a thousand additional cars to be purchased annually. The equipment of this character owned by the Pacific Fruit Express Company represents an outlay of more than \$15,000,000. This new order will total nearly \$1,500,000, at an approximate cost of \$1,400 each. The unceasing development of the West's horticultural and agricultural resources and the transformation of deserts into green orchards and fields creates the demand for more of these cars each succeeding year.—From Weekly Statesman, Salem, Oregon.

Manure

No matter how careful the farmer has been in outlining his year's work, some things have been overlooked. No doubt it is true that a great many farmers have failed to make the very best use of one of the farm's greatest assets—the stable and barnyard manure—last season. Just following harvest time every orchardist, grain and truck grower has a little time in which "to take stock." In no case should any farmer overlook the item, "Tons of manure to be hauled to benefit next year's crop."

For general farm practice it is a good plan to spread eight to ten tons per acre. It is much better to make frequent and light applications than heavier ones at long intervals. When manure is

Famous Hood River Apples

Spitzenbergs, Newtowns, Arkansas Blacks, Jonathans, Ortleys, Baldwins, Winesaps, R. C. Pippins, Ben Davis, M. B. Twigs

Look Good, Taste Better, Sell Best
Grade and Pack Guaranteed

Apple Growers' Union
Hood River, Oregon

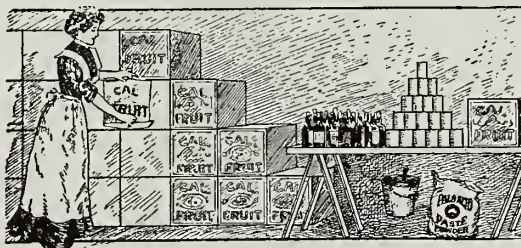


Real Estate

Twenty-five years' residence in Hood River. Write for information regarding the Hood River Valley. Literature sent upon request. Address all communications to

W. J. BAKER & CO.
HOOD RIVER, OREGON

Paste for Labeling—"Palo Alto" Paste Powder



added to cold water, instantly makes a beautiful, smooth, white paste. Ready for immediate use at a cost of ten cents a gallon. No labor. No muss. No spoiled paste.

Paste Specialists
Robinson Chemical Works
349-351 Eighth Street
San Francisco, California

TWO BIG EVENTS PACIFIC NORTHWEST LAND PRODUCTS INTERNATIONAL DAIRY SHOW

Portland, Oregon

November 18 to 23, 1912

EXCURSION FARES

FROM ALL STATIONS ON THE

Farmers
Fruit Growers
Stockmen
Dairymen
and
Merchants
from all
points
will be here



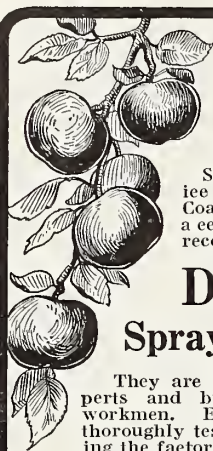
Tickets on
Sale
November
18, 19 and 20
Final
Return
Limit
November 25
1912

MANY VALUABLE PRIZES

At these shows you will meet people and see things worth while.

PARTICULARS FURNISHED UPON APPLICATION TO
ANY AGENT OF THE O-W. R. & N. or

PASSENGER DEPARTMENT O-W. R. & N. Portland, Oregon



Sixty Years' Success

Satisfactory service on the Pacific Coast for over half a century—that's the record of

Douglas Spray Pumps

They are designed by experts and built by skilled workmen. Every pump is thoroughly tested before leaving the factory.

You are not buying an experiment—80 years' experience in pump building stands behind our claims.

Douglas Pumps throw a fine cloudy mist, covering the trees thoroughly. They are efficient, durable and easily operated—guaranteed to give satisfactory service at all times.

No matter what pump you select—and we have a wide variety—you are certain that the design and materials will be of the very best.

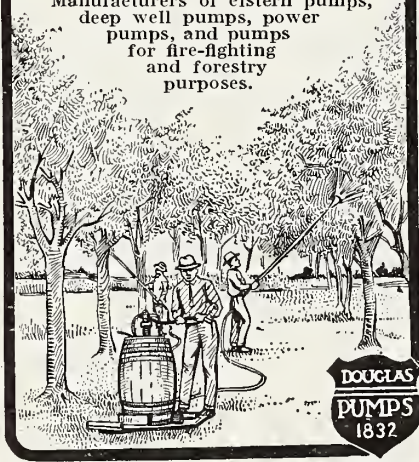
Send for 1912 Catalog. It's a mine of valuable information on proper spraying outfits. Free for the asking.

Douglas Spray Pumps are carried in stock by Parlin & Orendorff Paseo Co., Portland, Oregon, and Pasco, Washington.

W. & B. Douglas

16 Broad St., Middletown, Conn.

Manufacturers of eistern pumps, deep well pumps, power pumps, and pumps for fire-fighting and forestry purposes.



You Can Get Maximum Fruit Crops

If you keep a few bees to pollinate your blossoms, and keep them right.

First Lessons in Bee-Keeping tells how to do this. Price 50c by mail.

The American Bee Journal is a monthly magazine devoted to the interests of bees and their products. Price \$1.00 a year. Sample copy free.

We club the book and magazine together, both for only \$1.00. Write at once to

AMERICAN BEE JOURNAL
Hamilton, Illinois

More Interesting Than A Novel

Woodrow Wilson wrote the most interesting story of the American people ever written. It is the story of our country's life from earliest times to the point where history and the present meet. Write HARPER & BROTHERS, Franklin Square, New York, for full particulars.

spread frequently the soil is thus given a more uniform fertility, and the loss by drainage, de-nitrification, etc., is largely prevented. It is too often the case that the farm as a whole does not receive fair treatment; the fields adjacent to the stables are heavily manured, while those at a distance receive none.

The best method of applying manure is to spread it evenly over the ground, either with a spreader or with a fork. It is a poor practice to dump the loads in small piles at the time of hauling, to be spread later. This causes extra expense in spreading and also allows heavy losses of valuable plant foods. Oats grown on land treated in this manner present an uneven appearance, due to the non-uniformity of the soil fertility. It is safe to say that every farmer uses good judgment who evenly spreads the manure that has accumulated during the year.—C. W. Colver, Assistant Chemist, Idaho Experiment Station.

American Fruit Abroad

Every year sees more fruit from the United States sold in Europe and Great Britain. Apples, pears, prunes, peaches, oranges, lemons and in fact every kind of fruit that will carry well, is sold in foreign countries. The Consular Service is doing a good deal to extend the consumption of American fruit and to encourage American growers to widen their markets. It is believed that the opening of the Panama Canal will be of very pronounced aid to the fruit growers of the Pacific Coast in reaching cheaply not only the markets of Europe and Great Britain, but also of the Atlantic Coast. Improved refrigeration service and fast steamships will help to bring this about.

Grew Young On Fruit

O. J. Stough, of San Diego, California, is ninety-four years old, lives mostly on fruit and vegetables, and is as spry as a youth, traveling all over the state. He says he eats but one fruit at a meal, but sometimes several vegetables. He believes fruits and vegetables do not go well together. He knew one San Diego woman who lived to be 125, and he rather expects to live that long himself. Stough has a 5,000-acre ranch near Burbank, and he declared that the average American farmer is lazy. The San Diego Exposition people would like to get Stough and some other nonagenarian fruit eaters as an exhibit in 1915. They would attract much attention.

Foreign Duty High

Some people think that the tariffs on American fruits and vegetables are high, but the foreign countries also know how to put on heavy tariffs. The consul at Prague writes that the local canned fruit is inferior to the American, but that owing to the high duty on canned fruit—7.83 cents per pound—only a limited quantity is sold.

APPLE Western Soft Pine
Light, strong and
durable

"Better Fruit" subscribers demand the "Better Box" **BOXES**

TWO CARLOADS DAILY

Our Soft Pine Box

makes an attractive package and will help you secure

Top Market Prices

for your choice apples.
We can serve you promptly.

Washington Mill Co.

Wholesale Manufacturers
Spokane, Washington

Hood River Grown Nursery Stock for Season 1911-1912

Standard Varieties
Prices Right and Stock First Class
C. D. THOMPSON, Hood River, Oregon

Make Big Money Drilling Wells

IMPROVED STANDARD DRILLING MACHINE
One Man Can Handle
Has a record of drilling 130 feet and driving casing in one day. Only three levers. Extra large rope sheaves. Positively will drill every kind of formation. Avoid delays from sending back East. Buy from us. We build these up-to-date machines. Will tell you all in catalog. Write for it.
REIERSON MACHINERY CO., MANFRS., PORTLAND, OREGON

J. F. LITTOOY

CONSULTING HORTICULTURIST

Land, irrigation and orchard schemes examined for owners, buyers, bonding companies or advertising agencies—Orchard and land values estimated—Orchard soils examined—Directs orchard development—land damage claims estimated—All business confidential.

BOISE, IDAHO

Use KEROSENE Engine Free!

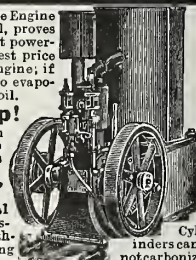
Amazing "DETROIT" Kerosene Engine shipped on 15 days' FREE Trial, proves kerosene cheapest, safest, most powerful fuel. If satisfied, pay lowest price ever given on reliable farm engine; if not, pay nothing. No waste, no evaporation, no explosion from coal oil.

Gasoline Going Up!

Gasoline is 9c to 15c higher than coal oil. Still going up. Two pints of coal oil do work of three pints gasoline.

Amazing "DETROIT"

—only engine running on coal oil successfully; uses alcohol, gasoline and benzine, too. Starts without cranking. Only three moving parts—no cams—no sprockets—no gears—no valves—the utmost in simplicity, power and strength. Mounted on skids. All sizes, 2 to 20 h. p., in stock ready to ship. Engine tested before crating. Comes all ready to run. Pumps, saws, threshes, churns, separates milk, grinds feed, shells corn, runs home electric lighting plant. Prices (stripped), \$29.50 up. Sent any place on 15 days' Free Trial. Don't buy an engine till you investigate money-saving, power-saving "DETROIT." Thousands in use. Costs only postal to find out. If you are first in your neighborhood to write, you get Special Extra-Low Introductory price. Write! (138)
Detroit Engine Works, 507 Bellevue Ave., Detroit, Mich.



Want Our Fruit

According to United States Consul Joseph I. Brittain, of Prague, the Bohemians want our fruit. He writes: "There is a market here for carefully packed American fruit of the finer grades. One dealer last year sold over thirty carloads of California fruit."

Marketing Problem.—Apple growers are now giving more than ever serious consideration to the marketing problem. They are earnestly engaged in an endeavor to market their apples more advantageously and are working along many lines in the right direction. One is to advertise the apple and its advantages as a food. Another is to create a wider distribution and to stimulate consumption. Americans are a people of habit. We must work earnestly to give them the apple-eating habit. We believe this edition will accomplish much along this line, and much more can be done by advertising the apple as a food. One firm spent a million dollars in advertising a food commodity before a package was put on the market. What has the grower ever done in the way of advertising the apple that would tend towards increasing the consumption? I can answer the question in one word, "Nothing." It is time to get busy on this subject.

The highest types of apple in the world today are the Hood River Spitzenberg and Yellow Newtown Pippin; the highest type today to Hood River's cosmopolitan people of a life insurance policy is a Policy of the National Life Insurance Company of the United States of America, of Chicago.

These Policies, which hundreds of your neighbors have, make superb Christmas presents, Happy New Year gifts, appropriate wedding presents, choice birthday reminders and unexcelled anniversary tokens.

Write for information to the Agent at Large, Dr. James H. Shults, Hood River, whom most of you know, quote "Better Fruit," and full and satisfactory information will be furnished and hurry orders will receive prompt attention by telegraph and special delivery letters.

Editor Better Fruit:

I was very much interested in reading your editorial in a recent number of "Better Fruit" in regard to "Overproduction of Apples." It seems to me that it is not so much a case of overproduction as underconsumption that the apple growers want to consider. I travel a great deal and have noticed in the hotels and on dining cars that at breakfast nearly every person—probably eight out of ten—orders either grape fruit or oranges. Even when there are baked apples on the bill of fare, but very rarely do I ever see people order them. Just out of curiosity I asked the order clerk who comes to our house to take orders for groceries about what per cent of his customers order apples regularly. He thought a while and then said that he did not think over one-half of them ordered apples regularly. I then asked, "What per cent of your customers order oranges?" He said that everyone ordered oranges, nearly all of his customers order them every week or oftener. It seems to me that it would be a good plan for apple growers' associations to get together and make means to stimulate the consumption of apples by the general public. Yours very truly, W. M. Davis, Boston, Massachusetts.

Terminal Ice and Cold Storage Co.

A COLD STORAGE PLANT, MODERN THROUGHOUT,
AT THIRD AND HOYT STREETS, PORTLAND, OREGON.

Fruit growers or apple growers and dealers of the Western markets in and around Portland, who have watched the markets closely for the past few years, have learned that in the spring there is always a good demand for apples, and that they usually bring good prices if they are in good condition. There is only one way to keep them in good condition for spring consumption, and that is to put them in cold storage.

We offer the best of cold storage facilities in the city of Portland and solicit correspondence from all the associations and fruit growers in general who want to store fruit in the fall or early winter to be used in the spring.

Write us and we will give you further particulars.

TERMINAL ICE AND COLD STORAGE CO.

THIRD AND HOYT STREETS, PORTLAND, OREGON

What's the Use

of wearing out your life in a stuffy office or worrying over your business cares in the city. Come to the beautiful Hood River Valley and enjoy the healthful outdoor life that you have dreamed about. You may not handle as much cash every month as you do in the city, but in all probability you will have more saved at the end of each year and will be able to live off of the best that the land has to offer and sleep soundly 365 days in the year. Come here and let us show you business propositions for business men, and you will kick yourself for not knowing of this valley years ago.

J. H. Heilbronner & Co.

HEILBRONNER BUILDING,

HOOD RIVER, OREGON

Whole Root Fully Matured Trees

THE KIND WE GROW—THE KIND THAT GIVE RESULTS

A complete line of Apple, Pear, Prune, Cherry, Peach, Etc.
Also Gooseberry, Currant, Grapes, Loganberries, Mammoth Blackberries, Etc.

We are heavily stocked in the leading commercial varieties which we are offering

IN QUANTITY AT EXCEPTIONALLY LOW PRICES

Offer only the best quality in grades, of healthy, clean, straight, vigorous trees; are unusually heavy in caliper, being grown on the whole-root system, on a well drained, rich, loamy soil, by natural moisture and thorough cultivation.

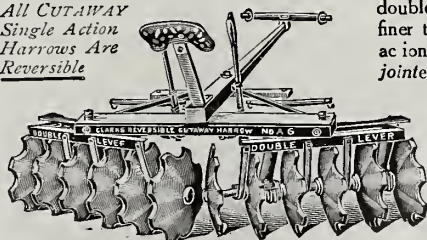
This produces a tree that is fully matured and well ripened. It is very important that you should start with the best of stock if you would succeed. Write at once for prices.

LAFAYETTE NURSERY COMPANY, LAFAYETTE, OREGON

These Harrows Are For Intensive Tillage

Remember, the CUTAWAY disk is the original "cutaway"; the CUTAWAY double action harrow, the original double action; the CUTAWAY reversible harrow, the original reversible; the CUTAWAY extension head harrow, the original extension head. CUTAWAY double action harrows have all four of their gangs compactly hung on one rigid main frame, which is the secret of successful double action harrows. That is one reason why

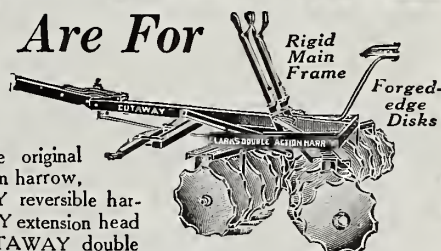
All CUTAWAY
Single Action
Harrow Are
Reversible



Cutaway Harrow Co.

940 Main Street, Higganum, Conn.

Makers of the original CLARK "Cutaway" implements



**Cutaway
CLARK'S**

double action harrows grind and pulverize the soil finer than other harrows. CUTAWAY double action are all equipped with the detachable jointed tongue, which can be removed or replaced in one minute, making the harrow into either a tongue or tongueless machine as desired. Both the single action and the double action are made with extension heads for extra work, and can be closed for regular field work. They are equipped with the famous CLARK cutlery steel disks, forged sharp, and CLARK hardwood journals. And remember, CUTAWAY single action harrows are reversible. Write for catalog, "Intensive cultivation."

MITCHELL, LEWIS & STAVAR CO., Western Agents, Portland, Oregon

CROP CONDITIONS JUNE 1, 1912, IN PERCENTAGES, WITH COMPARISONS FOR 1911
From the Crop Reporter

	Apples			Peaches			Pears			Black-berries			Rasp-berries			Canta-loupes			Water-melons		
	1912	1911	av.	1912	1911	av.	1912	1911	av.	1912	av.	1912	av.	1912	av.	1912	av.	1912	av.	1912	av.
North Atlantic																					
Maine	93	98	91	..	73	..	91	92	92	91	94	90	..	..	..	..	..	..	..	..	..
New Hampshire	90	75	84	..	69	73	82	85	90	94	90	91	..	..	..	..	..	..	..	..	..
Vermont	96	80	88	..	..	..	77	82	95	89	94	88	88	72	..	..	..	..	..	..	..
Massachusetts	85	82	85	50	72	68	72	80	90	89	90	89	81	85	98	..	..	..	..	..	..
Rhode Island	77	82	89	..	80	71	75	80	95	91	95	87	100	90	..	..	..	..	..	..	..
Connecticut	75	85	87	50	75	67	72	85	92	96	89	92	82	88	80	..	..	..	..	..	..
New York	87	80	84	45	70	60	70	81	89	91	89	90	70	87	86	82	..	..	..	..	..
New Jersey	75	78	71	50	68	69	71	71	87	88	90	81	81	79	82	79	..	..	..	..	..
Pennsylvania	66	78	73	35	72	63	58	75	85	89	86	87	80	80	75	78	..	..	..	..	..
Average	80.9	81.2	81.2	43.2	70.5	64.3	68.4	79.4	87.5	89.1	88.6	88.7	81.8	81.1	81.9	79.0	..	..	..	..	..
South Atlantic States																					
Delaware	77	66	70	65	50	60	70	60	91	88	80	83	80	79	80	80	..	..	..	..	..
Maryland	73	68	68	60	63	71	58	89	88	87	85	80	76	80	77	..	..	..	..	..	..
Virginia	75	53	58	76	37	51	80	46	92	92	87	87	80	77	80	77	..	..	..	..	..
West Virginia	75	60	63	65	50	54	66	51	91	91	91	86	83	78	81	77	..	..	..	..	..
North Carolina	80	48	60	93	32	55	83	33	95	93	90	88	81	81	84	81	..	..	..	..	..
South Carolina	64	41	62	90	32	67	72	45	95	88	..	82	81	78	80	79	..	..	..	..	..
Georgia	65	50	57	93	34	63	69	40	95	90	92	90	79	81	81	84	..	..	..	..	..
Florida	..	..	..	80	60	75	53	50	..	..	..	..	83	78	89	82	..	..	..	..	..
Average	75.0	54.0	60.6	79.9	43.1	60.3	70.5	50.7	91.4	89.3	85.6	84.8	81.0	78.1	82.0	81.3	..	..	..	..	..
North Central States, East of Mississippi River																					
Ohio	55	75	60	30	71	48	54	75	81	88	82	85	83	80	80	79	..	..	..	..	..
Indiana	51	72	59	18	73	49	50	70	70	90	75	86	76	78	76	77	..	..	..	..	..
Illinois	50	75	57	5	80	46	52	62	89	70	84	75	80	77	79	..	..	..	..	..	..
Michigan	81	69	77	30	80	65	62	79	75	87	78	86	80	83	81	83	..	..	..	..	..
Wisconsin	67	88	79	..	..	..	58	74	87	84	86	82	90	82	84	84	..	..	..	..	..
Average	59.4	73.8	63.8	25.2	76.1	54.9	55.2	72.4	71.6	88.3	78.3	85.2	78.3	80.1	77.2	78.4	..	..	..	..	..
North Central States, West of Mississippi River																					
Minnesota	65	91	78	..	..	..	..	84	82	91	81	90	81	92	81	..	..	..	..	..	..
Iowa	33	92	68	10	40	33	50	58	65	84	65	77	88	85	86	85	..	..	..	..	..
Missouri	80	62	51	30	69	39	60	48	60	85	63	79	79	76	79	76	..	..	..	..	..
North Dakota	..	..	..	..	..	..	..	..	..	..	..	..	..	78	84	..	..	..	..	..	..
South Dakota	75	90	80	..	..	..	..	..	..	95	81	87	86	90	..	..	..	..	..	..	..
Nebraska	67	72	64	60	10	34	69	40	75	78	80	76	85	82	84	83	..	..	..	..	..
Kansas	80	60	56	70	30	44	75	50	80	81	80	76	80	78	80	78	..	..	..	..	..
Average	71.2	67.7	57.7	50.1	40.7	40.5	61.3	49.3	66.5	83.7	70.9	77.9	83.3	79.7	81.3	78.7	..	..	..	..	..
South Central States																					
Kentucky	67	55	56	45	40	48	68	40	65	92	70	86	79	78	80	79	..	..	..	..	..
Tennessee	70	45	52	89	19	49	70	18	90	94	90	84	80	80	79	81	..	..	..	..	..
Alabama	63	45	60	90	40	61	69	30	94	91	..	81	76	80	79	81	..	..	..	..	..
Mississippi	66	42	57	90	28	62	68	26	94	89	94	84	74	75	78	77	..	..	..	..	..
Louisiana	75	33	62	85	38	63	77	45	90	88	..	75	78	75	79	..	..	..	..	..	..
Texas	75	64	70	83	40	63	79	44	87	80	84	80	82	78	81	77	..	..	..	..	..
Oklahoma	78	60	67	90	38	66	81	44	80	82	78	76	76	77	73	78	..	..	..	..	..
Arkansas	81	57	61	89	43	61	80	35	90	88	88	82	79	74	78	74	..	..	..	..	..
Average	72.3	52.8	58.2	83.2	37.1	60.2	75.2	37.5	83.4	85.5	80.9	83.9	79.3	77.4	78.9	78.0	..	..	..	..	..
Far Western States																					
Montana	96	85	90	..	..	..	100	90	90	..	90	90	98	..	97	..	..	..	..	..	..
Wyoming	..	82	84	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Colorado	85	71	73	75	33	52	83	51	86	82	86	83	91	86	91	86	..	..	..	..	..
New Mexico	82	85	68	70	81	57	74	80	..	..	..	..	86	83	85	..	..	..	..	..	..
Arizona	..	..	..	90	69	64	85	75	..	..	..	..	93	90	90	90	..	..	..	..	..
Utah	102	75	79	94	54	68	95	64	97	88	96	89	88	80	89	83	..	..	..	..	..
Nevada	99	30	65	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Idaho	99	87	87	85	60	54	95	83	98	91	97	92	95	89	95	89	..	..	..	..	..
Washington	96	81	89	89	70	70	91	84	98	94	98	91	92	86	92	86	..	..	..	..	..
Oregon	92	75	85	75	50	68	83	75	97	95	98	94	92	87	92	88	..	..	..	..	..
California	93	77	82	87	65	79	89	73	95	95	95	94	91	89	91	88	..	..	..	..	..
Average	93.0	77.8	82.9	86.4	63.2	76.4	88.7	73.0	95.4	93.9	94.3	91.1	90.4	86.1	90.6	87.5	..	..	..	..	..
United States...	72.3	68.5	65.6	63.7	52.1	58.7	70.9	65.1	79.3	87.9	82.1	85.8	81.1	79.6	80.6	79.6	..	..	..	..	..



Make the Farm Pay

Prof. Brooks

Complete Home Study Courses in Agriculture, Horticulture, Floriculture, Landscape Gardening, Forestry, Poultry Culture, Farm Accounting and Veterinary Science under Prof. Brooks of the Massachusetts Agricultural College, Prof. Craig of Cornell University, Prof. Bexell of the Oregon Agricultural College and other eminent teachers.

Over one hundred Home Study Courses under able professors in leading colleges. 250-page catalog free. Please address

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Tree Planting and Stumping POWDER

An honest product made by an Independent Home Company.

Are you going to plant trees or clear land this year?

Have you heard of "Imperial," the new explosive—superior substitute for dynamite and "King of all Powders"?

Won't freeze—no headache—safer than dynamite and does the same and better work with less powder.

Sold to you direct from the factory in any quantity from one box up at the same price that dealers pay for dynamite in carloads.

You buy "Imperial" by the box as cheap as they can buy dynamite from the manufacturer in carloads, and save middlemen, jobbers and dealers' profits.

Write. Let us tell you all about this powder, and prices, and how much money we can save you. Glad to answer letters.

IMPERIAL POWDER COMPANY

Drawer Y Chehalis, Washington, U. S. A.

Store Your Apples

In our new modern cold storage plant. Equipped with the latest

Dry Air System

We have every facility for handling, shipping and delivering.

Charges Reasonable.

UNION MEAT COMPANY
Warehouse Dept. Portland, Oregon

HOW TO GET BETTER LIGHT From KEROSENE (Coal Oil)

Tests by Prof. Rogers, Lewis Institute, Chicago, on leading oil-burning lamps show the Aladdin Mantle Lamp is the most economical and gives over twice as much light as the Rayo and other lamps tested. It is odorless, safe, clean, noiseless. Guaranteed. Better light than gas or electric. To introduce the Aladdin we'll send a sample lamp on—

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Fruit Handling and Pre-Cooling Investigations

A. V. Stubenrauch, United States Department of Agriculture, before Washington State Horticultural Convention at Clarkston

THE request of your secretary specified that a paper on the pre-cooling of fruit was desired for this meeting. It is wholly impossible, however, to discuss the question of the pre-cooling of fruit without reference to the importance of the handling given the fruit in preparing it for shipment or storage, and it will be necessary to devote a large part of the discussion to handling problems. The term "pre-cooling" has been applied to the method of promptly and rapidly reducing the initial temperatures of produce intended for shipment. The work requires special equipment aside from that needed to maintain the low temperature after the initial heat has been removed. Pre-cooling, or chilling, has been used for a number of years in preparing meats for shipment or storage, but as far as is known the first application of this process to the handling and shipment of fruits was made

in 1904 by Mr. G. Harold Powell, who was then in charge of the fruit transportation and storage investigations of the Bureau of Plant Industry. The first work consisted of the pre-cooling of peaches intended for shipment from Georgia to Northern markets. The equipment used was necessarily rather crude, yet some very definite results were obtained. Later on the process was applied to oranges and deciduous fruit in California, and since Mr. Powell's early work special attention has been given by the office of field investigations in pomology to the investigation of the problems connected with the pre-cooling of different fruits. In addition to oranges and peaches, these investigations have been extended to table grapes in California, and last season work was begun on cherries and fresh prunes in Oregon and raspberries in Washington. Special equipment has been supplied in order to enable the work to be carried on at different points in the United States.

In an article on "The Pre-Cooling of Fruit" in the Year Book of the Department of Agriculture for 1910 a general discussion of the subject was presented, and the following paragraphs are quoted from that article: "The Reasons for Pre-Cooling.—During the maturing of a normal fruit on the tree certain chemical and physiological changes are constantly taking place within the fruit itself. These changes, which result in the acquirement of quality and flavor, constitute the ripening process. After a certain point is reached the fruit becomes over-ripe, quality and flavor are lost and deterioration progresses until eventually the fruit is destroyed by fungous decay or fermentation, or through destructive physiological changes. A fruit may be considered as a living organism which has a definite span of existence, the length of this span depending upon the conditions surrounding the organism. The most important factor which modifies this span of life is temperature. When the fruit is removed from the parent plant the life processes constituting ripening are materially hastened,

and the life span is greatly shortened if the fruit is allowed to remain warm for any length of time. Hence the importance of reducing the temperature as promptly and rapidly as possible after the fruit is picked. The length of the life span differs with the

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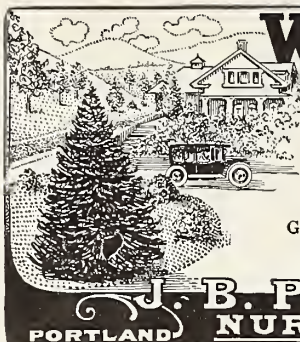
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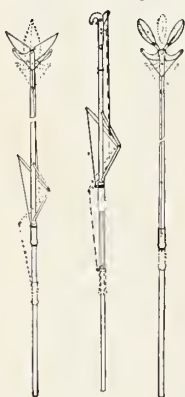
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character of the fruit. It is shortest in the soft fruits, such as berries, cherries, peaches, apricots, plums and most pears, and longest for the harder fruits, citrus fruit and apples. It varies with different varieties within the same group of fruits. Some varieties of apples, for example, keep longer than others; lemons keep longer than oranges. The importance of quick and prompt cooling (pre-cooling), then, is greatest in the case of the soft fruits and least for the harder fruits. Experience so far confirms this rule. Aside from the breaking down from over-ripeness fruits are subject to premature decay, due to the attacks of various fungi. The most common forms of these fungi, however, have not the power to penetrate the sound, unbroken skin of a healthy, normal fruit. Most of the decay occurring in fruits in transit and storage starts at injuries and breaks in the skin, caused almost entirely by rough handling in preparing the fruit for market, either in picking, grading, hauling or packing. Wounds, bruises, scratches or abrasions of any kind allow the organisms of decay to gain entrance. Other fungi which are not dependent upon injuries to start attack fruits in transit and storage, but these forms of decay are much less prevalent. The germination of the decay spores, which are analogous to the seeds of higher plants, is dependent upon proper moisture and temperature conditions. Germination does not take place while the fruit is perfectly dry or when the temperature is low. After the spores have germinated, however, and the decay has started within the fruit, even as low a temperature as 32 degrees Fahrenheit will not wholly check it. Growth of the mold is only retarded and the decay continues slowly to develop."

The prompt and rapid reduction of the temperature below the point where decay spores germinate prevents the development of the disease. Some fruits which have been rendered susceptible through mechanical injuries occurring in handling may be transported with only slight loss from decay when promptly cooled. It is not safe, however, to depend upon pre-cooling to prevent decay which follows the improper handling. Pre-cooling should never be expected to replace proper work. The fact that it does not always effectively replace careful handling is shown by the bureau investigations with table grapes. It has been the policy of the bureau to advise conservative caution in the application of pre-cooling on a commercial scale. It was realized that pre-cooling would not prove a panacea for all of the troubles which the different fruit industries were experiencing in transporting fruits to market. The importance of careful handling was consistently urged and all efforts were made to emphasize the necessity of handling the various fruits in a manner to insure their sound carrying qualities. The bureau work has shown that there is a consistent relation between the type of

handling given fruits in preparing them for shipment and their behavior during transit and storage. There is practically no way to avoid responsibility for the occurrence of decay and deterioration due to careless handling on the part of the grower or shipper who prepares the fruit for market. To use pre-cooling as a means to overcome difficulties which ordinarily can be eliminated by packing the fruit in sound condition is not only poor policy but is dangerous to the reputation of the product. Pre-cooling does not absolutely prevent decay. The reduction of the temperature simply arrests the development of mold, and therefore the deterioration due to these agencies occurs after the fruit arrives in market. Such fruit will soon gain a reputation of poor shipping qualities. The correctness of this early conclusion regarding the uses of pre-cooling have been emphasized by later work with table grapes. With this class of fruits the results of three consecutive seasons show that pre-cooling does not effectively replace careful methods of handling. There was in some instances a slight reduction in decay due to injuries or to other causes in cars which contained pre-cooled fruit, but the benefits from the pre-cooling process without attention to careful handling were not sufficient to justify the extra trouble and expense.

In order to emphasize the results from the table grape handling and pre-cooling work the accompanying tables and charts, giving summaries of the three seasons' work on Tokay grapes from California, are presented. A glance at the figures (Table I) shows that by careful handling, aside from pre-cooling, the decay in the grapes shipped from California may be held at a minimum. The figures presented comprise the results obtained from the systematic handling, shipping and inspection of a large number of crates of grapes produced under a wide range of conditions. The figures also show the behavior of this fruit after arrival in market. Inspections were made on the day of arrival, after holding two days and after four days, the fruit being held under open market conditions and without refrigeration. The consistent effect of careful handling after the fruit arrives in market is strikingly shown. The importance of having such perishable fruit hold up after it arrives in market need hardly be emphasized. Grapes which arrive with as low a percentage of decay as is shown in the figures for the carefully handled lots, on arrival in New York, may be reshipped to neighboring cities with perfect safety, whereas the commercially handled lots deteriorate so rapidly after arrival that they must be immediately consumed, otherwise a large proportion of the fruit is wasted. The figures also show the percentages of decay obtained from grapes packed in ground cork and redwood sawdust. The use of a filling material in packing California table grapes reduces the decay percentage to a minimum. It has

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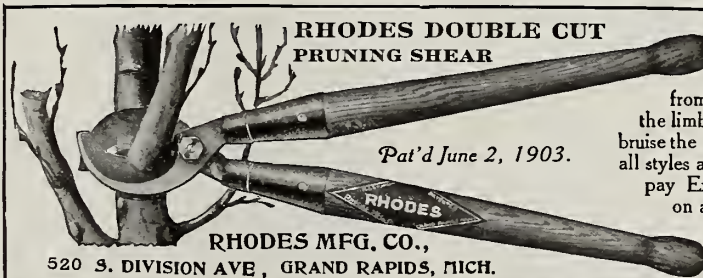
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not been thought wise to advise the change from the old method of packing in crates to one using a filler because of the difficulty of introducing a new style of package under commercial conditions. From the last season's experience, however, there is some indication that at least the best grades of grapes may be packed with this filler, and an attempt will be made to introduce this new system of packing for ordinary commercial shipment next season.

Table II shows the results from comparable shipments of pre-cooled and non-pre-cooled table grapes to New York during three consecutive seasons. No attempt was made to handle these grapes carefully; the ordinary commercial pack was used. The pre-cooling was accomplished by means of a cold-air blast circulated through the cars until the average temperature of the fruit was reduced to a point near 40 degrees. The figures show that decay was slightly less in the pre-cooled cars, but the differences are not sufficient to warrant any considerable extra expense. A greater reduction in decay was accomplished by careful handling without pre-cooling than by pre-cooling alone. This is a most important point and one which cannot be too strongly emphasized. The tendency to regard pre-cooling as a means to overcome all of the difficulties which are experienced in transporting fruits is widespread, and while we feel that this system of preparing fruits for shipment over long distances is a most important one and one which will have a very great influence on the carrying qualities of fruit after the grower, the packer and the shipper have done their share to insure the preparation of the fruit for market in sound condition, pre-cooling must not be depended upon to replace all of these special efforts. The fruit handling investigations of the Bureau of Plant Industry have been in progress about ten years. During that time a very comprehensive study has been made of the relationship of handling various kinds of fruit to their behavior in transit, in storage and while on the market. This study has been extended to the California orange and lemon, the California table grape, the Georgia peach, the Florida orange and pomelo, and last season investigations were begun with red raspberries in Washington and cherries and fresh prunes in Oregon. The results of these studies, covering a wide range of fruits, are consistent throughout and show a very definite relation between the methods of handling the fruits and their behavior after packing. I will not attempt to give all of the data which have been accumulated along these various lines. It is, however, important to present some of the results in order to show how conclusive and how consistent the work has been.

In table III the results from the shipping experiments with Florida oranges during the season of 1910-11 are shown. The fruit used in these



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TABLE I—SHIPMENTS OF TOKAY GRAPES FROM LODI, CALIFORNIA, TO NEW YORK SEASONS OF 1908, 1909, 1910—AVERAGE PERCENTAGES OF DECAY

Season of 1908	On arrival	2 days after arrival	4 days after arrival
Packed in ground cork.....	1.6	4.2	6.6
Carefully handled in crates.....	4.2	7.8	16.2
Commercially handled in crates.....	9.6	14.7	33.9
Season of 1909			
Packed in redwood sawdust.....	0.2	0.6	0.7
Carefully handled in crates.....	0.9	2.6	5.1
Commercially handled in crates.....	4.4	7.4	15.8
Season of 1910			
Packed in redwood sawdust.....	2.2	3.6	4.2
Carefully handled in crates.....	4.0	5.8	9.3
Commercially handled in crates.....	6.5	9.6	15.8

TABLE II—PRECOOLED AND NON-PRECOOLED COMMERCIAL SHIPMENTS OF TOKAY GRAPES FROM LODI, CALIFORNIA TO NEW YORK, SEASONS OF 1909, 1910 AND 1911—AVERAGE PERCENTAGES OF DECAY

Season of 1909	On arrival	2 days after arrival	4 days after arrival
Precooled shipments.....	6.6	12.7	16.8
Non-precooled shipments.....	7.5	10.9	15.1
Season of 1910			
Precooled shipments.....	7.4	11.1	15.1
Non-precooled shipments.....	8.7	12.2	17.5
Season of 1911			
Precooled shipments.....	6.5	12.2	16.7
Non-precooled shipments.....	8.1	12.8	17.0

TABLE III—FLORIDA ORANGE SHIPPING EXPERIMENTS, SEASON OF 1910-11—AVERAGE PERCENTAGE OF DECAY IN EIGHTEEN EXPERIMENTS IN SEVENTEEN PACKING HOUSES

	On arrival	At end of 1st week	At end of 2d week	At end of 3d week
Careful pick and pack.....	0.7	1.4	1.7	2.0
Commercial pick, careful pack.....	2.9	5.3	7.0	7.9
Commercial pick and pack.....	6.7	12.1	15.3	16.6

TABLE IV—RED RASPBERRY HANDLING EXPERIMENTS, PUYALLUP, WASHINGTON SEASON OF 1911—AVERAGE PERCENTAGE OF DECAY

	4 days in refrigerator car	6 days in refrigerator car	8 days in refrigerator car
Carefully handled			
On withdrawal.....	0.2	0.3	1.7
One day after.....	0.6	3.5	7.8
Commercially handled			
On withdrawal.....	1.4	7.2	22.2
One day after.....	12.2	27.6	44.3

TABLE V—RED RASPBERRY PRECOOLING EXPERIMENTS, PUYALLUP, WASHINGTON SEASON OF 1911—AVERAGE PERCENTAGE OF DECAY

	4 days in refrigerator car	6 days in refrigerator car	8 days in refrigerator car
Precooled, commercially handled			
On withdrawal.....	2.1	9.1	18.4
One day after.....	9.5	19.1	35.2
Non-precooled, commercially handled			
On withdrawal.....	5.9	15.4	27.4
One day after.....	16.5	28.8	45.8

TABLE VI—CAREFULLY HANDLED AND COMMERCIALY HANDLED CHERRIES AT SALEM, OREGON, 1911—AVERAGE PERCENTAGES OF DECAY

	5 days in refrigerator car	10 days in refrigerator car	15 days in refrigerator car
Carefully handled			
At withdrawal.....	0.5	1.5	4.3
Two days after.....	3.5	3.5	7.3
Commercially handled			
At withdrawal.....	2.8	12.3	16.0
Two days after.....	10.8	21.4	26.1

TABLE VII—CAREFULLY HANDLED AND COMMERCIALY HANDLED FRESH PRUNES SALEM, OREGON, 1911—AVERAGE PERCENTAGES OF DECAY

	10 days in refrigerator car	15 days in refrigerator car	20 days in refrigerator car
Carefully handled			
On withdrawal.....	0.7	0.4	2.7
Two days after.....	1.2	1.2	3.8
Four days after.....	1.6	2.1	4.7
Six days after.....	2.1	3.7	6.9
Commercially handled			
On withdrawal.....	3.5	7.1	6.8
Two days after.....	5.6	8.8	9.7
Four days after.....	9.3	11.5	19.3
Six days after.....	8.7	16.6	23.3

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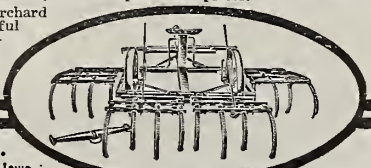


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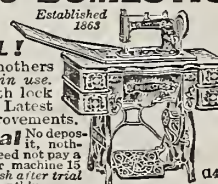
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The Kimball Cultivator works well out from the horses, and soil can be stirred close to trunks of trees, with horses walking out in the open. The Kimball takes a wide sweep at a time, and eight to ten acres of orchard can be cultivated per day. Thousands of Kimball Cultivators are now in use, and every person who has one recommends it. Mr. Irvine, editor of *The Fruit-Grower*, used two Kimball Cultivators at Morrisania last season; ask him what he thinks of them. Ask him also if the Kimball is not an ideal cultivator for any part of the country; he will tell you it is an ideal soil-stirring implement.

Clean Cultivation of Orchards Pays

It not only conserves moisture, but destroys the hiding places of insects, such as curculio, which are often serious orchard pests. Apples grown in cultivated orchards ripen later and consequently keep longer; they are of larger size and are usually smoother. The cost of cultivation is not excessive if Kimball Cultivators are used. Send for free booklet describing this great orchard implement—it's free for the asking.

W. A. JOHNSTON, Manufacturer
THE DALLES, OREGON

experiments was obtained from seventeen packing houses located in various parts of the Florida citrus districts. The fruit used, therefore, was produced under a wide range of conditions and the investigation was continued throughout the entire shipping season. The data are, therefore, the result of a large number of experiments consisting of a sufficient number of boxes of fruit to place the work on a commercial basis. A glance at the figures and the diagrams shows the consistency of the general principle expressed above. Of all of the series of oranges picked, packed and shipped by the bureau workers, the percentage of decay was only .7 per cent on arrival at Washington, D. C. The fruit was held for three weeks, inspections being made at the end of the first, second and third weeks. At the end of the first week the carefully picked and packed fruit showed 1.4 per cent, while at the end of the second and third weeks, respectively, 1.7 and 2 per cent decay developed. Contrast these figures with the fruit picked and packed under ordinary commercial conditions. On arrival the commercially picked and packed fruit had 6.7 per cent decay, and after holding one week 12.1 per cent; after two weeks 15.3 per cent and after three weeks 16.6 per cent.

Red Raspberry Handling and Pre-Cooling Experiments.—This work was begun during the season of 1911, and records from only one season are available. (See tables IV and V). All pre-cooling was done after the fruit was loaded into the cars. The data obtained were clear cut and are consistent with the general principles developed with other fruits; they are presented as additional corroborative evidence. This work will be continued and extended until full and conclusive records shall have been completed. It was impracticable to obtain the inspection data after shipment to Eastern points. The raspberry crates were, therefore, held in an iced refrigerator car at Puyallup, Washington, and the lots of fruit were withdrawn after holding periods, which represents trips of four, six and eight days, respectively. The conditions for rapid cooling in the iced car at Puyallup were considerably more favorable than obtain during a transcontinental trip. The car was kept fully iced throughout the season and at no time was a full carload of fruit on hand. The fruit held without pre-cooling was, therefore, cooled much more rapidly than would have been the case under actual shipping conditions. It is necessary to take these factors into consideration in making comparisons of pre-cooled and non-pre-cooled crates. It is only fair to assume that under shipping conditions the decay in non-pre-cooled berries would be higher than shown by these experiments. The point to be drawn from these figures is the consistently clear-cut results from careful handling with this very perishable fruit. The two tables should be considered separately and are not comparable. Only

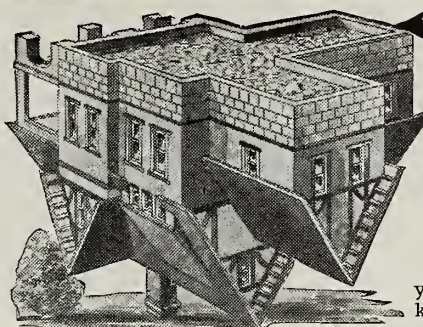
the data obtained from actual comparable series of experiments are included in the figures shown in each table, and the series for the handling and pre-cooling experiments are not the same. The figures for the percentages of decay in the pre-cooled lots do not tell the whole story. The pre-cooled berries presented a very much brighter and more favorable appearance than the non-pre-cooled, and the consensus of opinion of all who examined the fruit was that a material benefit resulted from the pre-cooling. This need not in any way detract from the importance of the results from the handling experiments.

Cherry and Fresh Prune Handling Experiments.—This work was begun at Salem, Oregon, during the season of 1911. The results are given in order to further emphasize the consistency of the careful handling principle. (See table VI). As in the case of the raspberry experiments, it was impracticable to make inspections after actual shipment and the lots were held in an iced car for periods representing trips of ten, fifteen and twenty days, respectively. The conditions were only approximately those of a car in transit, as owing to the car being only partially filled the temperature conditions in the car were more favorable than during shipment with a full carload. The fruit was held after withdrawal from the car under open market conditions. Careful handling in the work with cherries and prunes consisted not only in using care in picking and packing but in grading or culling out all imperfect fruits. The season was very unfavorable, there having been considerable rain during the shipping season, and a large proportion of the fruit was cracked and otherwise damaged. These were carefully culled out as far as practicable in the carefully handled lots; in the commercial packs little attention was paid to culling out the imperfect fruits.

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Editor Better Fruit:

Supply of the August number of your valued publication, which you so kindly sent, just to hand and I am writing to acknowledge same at the conclusion of an interested perusal of the pages of one of the copies. I must commend you on the edition. Typographically, editorially, and from an advertising standpoint it is splendid, and not only well reflects the vast extent and wealth of the territory and the industry to which it caters, but the character of men by whom it is headed and published. Journalism of this character must have its effect in a very material way and I can see no reason why it should not be very profitable from a financial standpoint to the men behind it. If at any time there is any way in which I can be of further service to you, either in furnishing halftone cuts or in furnishing news and comment from this district that would be of interest, I trust you will command me. With best wishes, very truly yours, T. H. Martin, Secretary and General Manager Tacoma Chamber of Commerce.



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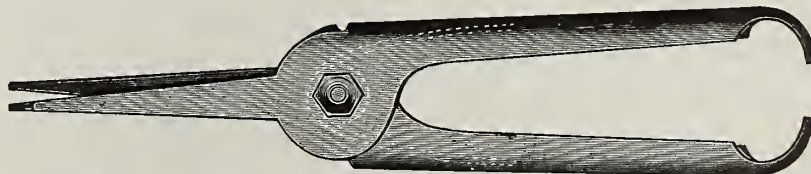
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Northwest Fruit Growers' Unions and Associations

We publish free in this column the name of any fruit growers' organization. Secretaries are requested to furnish particulars for publication.

Oregon

Albany Fruit Growers' Union, Albany.
Ashland Fruit and Produce Association, Ashland.
Benton County Fruit Growers' Association, Corvallis.
Brownsville Fruit and Produce Association, Brownsville.
Coos Bay Fruit Growers' Association, Marshfield.
Coquille Valley Fruit Growers' Union, Myrtle Point.
Cove Fruit Growers' Association, Cove.
Dallas Fruit Growers' Association, Dallas.
Douglas County Fruit Growers' Association, Roseburg.
Dufur Valley Fruit Growers' Union, Dufur.
Dundee Fruit Growers' Association, Dundee.
Estacada Fruit Growers' Association, Estacada.
Eugene Fruit Growers' Association, Eugene.
Hood River Apple Growers' Union, Hood River.
Hyland Fruit Growers of Yamhill County, Sheridan.
Imbler Fruit Growers' Union, Imbler.
La Grande Fruit Association, La Grande.
Lincoln County Fruit Growers' Union, Toledo.
McMinnville Fruit Growers' Association, McMinnville.
Milton Fruit Growers' Union, Milton.
Mosier Fruit Growers' Association, Mosier.
Mount Hood Fruit Growers' Association, Sandy.
Newburg Apple Growers' Association, Newburg.
Northwestern Fruit Exchange, 418 Spalding Building, Portland.
Northeast Gaston Farmers' Association, Forest Grove.
Oregon City Fruit and Produce Association, Oregon City.
Rogue River Fruit and Produce Association, Medford.
Salem Fruit Union, Salem.
Santiam Fruit Growers' Association, Lebanon.
Springbrook Fruit Growers' Union, Springbrook.
Stanfield Fruit Growers' Association, Stanfield.
Sutherlin Fruit Growers' Association, Sutherlin.
The Dalles Fruit Growers' Union, The Dalles.
Umpqua Valley Fruit Growers' Association, Roseburg.
Washington County Fruit Growers' Association, Hillsboro.
Willamette Valley Prune Association, Salem.

Washington

Apple Growers' Union of White Salmon, Underwood.
Bay Island Fruit Growers' Association, Tacoma.
Brewster Fruit Growers' Union, Brewster.
Buckley Fruit Growers' Association, Buckley.
Cashmere Fruit Growers' Union, Cashmere.
Clarkston Fruit Growers' Association, Clarkston.
Cowlitz Fruit and Produce Association, Kelso.
Dryden Fruit Growers' Union, Dryden.
Elma Fruit and Produce Association, Elma.
Felida Prune Growers' Association, Vancouver.
Garfield Fruit Growers' Union, Garfield.
Goldendale Fruit and Produce Association, Goldendale.
Grandview Fruit Growers' Association, Grandview.
Granger Fruit Growers' Association, Granger.
Kalama Fruit Growers' Association, Kalama.
Kennewick Fruit Growers' Association, Kennewick.
Kiona Fruit Growers' Union, Kiona.
Lake Chelan Fruit Growers' Association, Chelan.
Lewis County Fruit Growers' Association, Centralia.
Lewis River Fruit Growers' Union, Woodland.
Mason County Fruit Growers' Association, Shelton.
Mount Vernon Fruit Growers' Association, Mount Vernon.
Northwestern Fruit Exchange, 510 Chamber of Commerce Building, Spokane.
Peshastin Fruit Growers' Association, Peshastin.
Pullman Fruit Growers' Association, Pullman.
Puyallup and Sumner Fruit Growers' Association, Puyallup.
Spokane County Horticultural Society, Spokane.
Spokane District Fruit Growers' Association, Spokane.
Spokane Highlands Fruit Growers' Association, Chester.
Spokane Inland Fruit Growers' Association, Kelso.
Spokane Valley Fruit Growers' Co., Otis Orchards.
Spokane Valley Growers' Union, Spokane.
Southwest Washington Fruit Growers' Association, Chelan.
Stevens County Fruit Growers' Union, Myers Falls.
The Green Bluffs Fruit Growers' Association, Mead.
The Ridgefield Fruit Growers' Association, Ridgefield.
The Touchet Valley Fruit and Produce Union, Dayton.
Thurston County Fruit Growers' Union, Tumwater.

A PANORAMIC VIEW

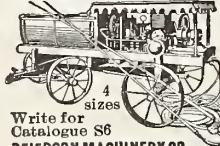
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Wenatchee District Fruit Growers' Union, Wenatchee.
Wenatchee Valley Fruit Growers' Association, Wenatchee.
White River Valley Fruit and Berry Growers' Association, White Salmon.
Yakima Valley Fruit Growers' Association, North Yakima.
Yakima Valley Fruit and Produce Growers' Association, Granger.
Yakima County Horticultural Union, North Yakima.
Zillah Fruit Growers' Association, Toppenish.

Idaho

Boise Valley Fruit Growers' Association, Boise.
Caldwell Fruit Growers' Association, Caldwell.
Council Valley Fruit Growers' Association, Council.
Emmett Fruit Growers' Association, Emmett.
Fruit Growers' Association, Moscow.
Lewiston Orchards Assembly, Lewiston.
Lewiston Orchards Association, Lewiston.
Nampa Fruit Growers' Association, Nampa.
New Plymouth Fruit Growers' Association, New Plymouth.
Parma-Roswell Fruit Growers' Association, Parma.
Payette Valley Apple Growers' Union, Payette.
Southern Idaho Fruit Shippers' Association, Boise.
Twin Falls Fruit Growers' Association, Twin Falls.
Weiser Fruit and Produce Growers' Association, Weiser.
Weiser River Fruit Growers' Association, Weiser.

Colorado

Boulder County Fruit Growers' Association, Boulder.
Capital Hill Melon Growers' Association, Rocky Ford.
Crawford Fruit Growers' Association, Crawford.
Delta County Fruit Growers' Association, Delta.
Denver Fruit and Vegetable Association, Denver.
Fair Mount Melon Growers' Association, Swink.
Fowler Melon Growers' Association, Fowler.
Fremont County Fruit Growers' Association, Canon City.
Granada Melon Growers' Association, Granada.
Grand Junction Fruit Growers' Association, Clifton, Palisade, Grand Junction.
Kouns Party Cantaloupe Growers' Association, Rocky Ford.
Lamar Melon Growers' Association, Lamar.
Longmont Produce Exchange, Longmont.
Loveland Fruit Growers' Association, Loveland.
Manzanola Fruit Association, Manzanola.
Manzanola Orchard Association, Manzanola.
Montrose Fruit and Produce Association, Montrose.
Newdale Melon Growers' Association, Swink.
Palisade Fruit Growers' Association, Palisade.
Paonia Fruit Exchange, Paonia.
Pent County Melon Growers' Association, Las Animas.
Produce Association, Debeque.
Rifle Fruit and Produce Association, Rifle.
Roaring Fork Potato Growers' Association, Carbondale.
Rocky Ford Melon Growers' Association, Rocky Ford.
San Juan Fruit and Produce Growers' Association, Durango.
The Producers' Association, Debeque.
Western Slope Fruit Growers' Association, Palisade.

Montana

Bitter Root Fruit Growers' Association, Hamilton.
Missoula Fruit and Produce Association, Missoula.
Woodside Fruit Growers' Association, Woodside.

Utah

Bear River Valley Fruit Growers' Assn, Bear River City.
Brigham City Fruit Growers' Association, Brigham City.
Cache Valley Fruit Growers' Association, Wellsville.
Centerville Fruit Growers' Association, Centerville.
Excelsior Fruit and Produce Association, Clearfield (post office Layton R. F. D.)
Farmers & Fruit Growers' Forwarding Assn, Centerville.
Green River Fruit Growers' Association, Green River.
Ogden Fruit Growers' Association, Ogden.
Springville Fruit Growers' Association, Springville.
Utah County Fruit and Produce Association, Provo.
Willard Fruit Growers' Association, Willard.

New Mexico

San Juan Fruit and Produce Association, Farmington.

California

California Farmers' Union, Fresno.
California Fruit Exchange, Sacramento.
Fresno Fruit Growers' Company, Fresno.
Lincoln Fruit Growers' Association, Lincoln.
Lodi Fruit Growers' Union, Lodi.
Loomis Fruit Growers' Association, Loomis.
Newcastle Fruit Growers' Association, Newcastle.
Penryn Fruit Growers' Association, Penryn.
Sebastopol Apple Growers' Union, Sebastopol.
Sebastopol Berry Growers' Union, Sebastopol.
Stanislaus Farmers' Union, Modesto.
The Supply Company of the California Fruit Growers' Association, Los Angeles.
Turlock Fruit Growers' Association, Turlock.
Vacaville Fruit Growers' Association, Vacaville.
Winters Fruit Growers' Association, Winters.

British Columbia

Armstrong Fruit Growers' Association, Armstrong.
Boswell-Kootenay Lake Union, Boswell.
British Columbia Fruit Growers' Association, Victoria.
Creston Fruit and Produce Exchange, Creston.
Grand Forks Fruit Growers' Association, Grand Forks.
Hammond Fruit Association, Ltd., Hammond.
Hatzic Fruit Growers' Association, Hatzic.
Kaslo Horticultural Association, Kaslo.
Kelowna Farmers' Exchange, Ltd., Kelowna.
Kootenay Fruit Growers' Union, Ltd., Nelson.
Mission Fruit Growers' Association, Mission.
Okanagan Fruit Union, Ltd., Vernon.
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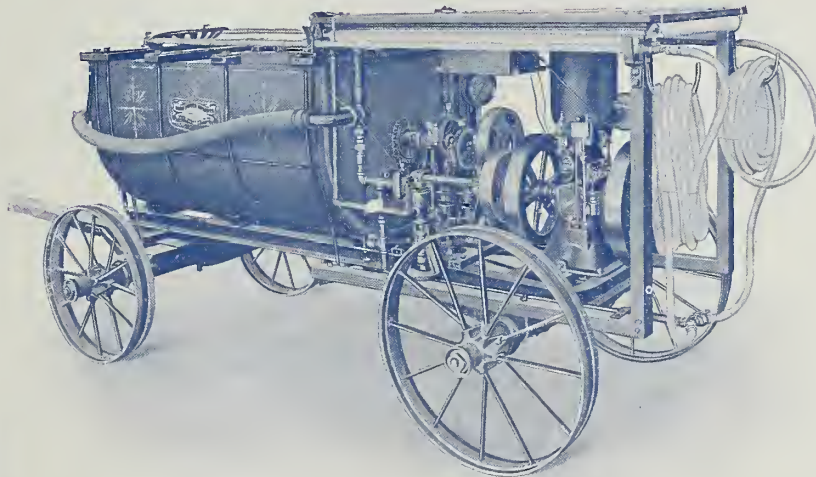
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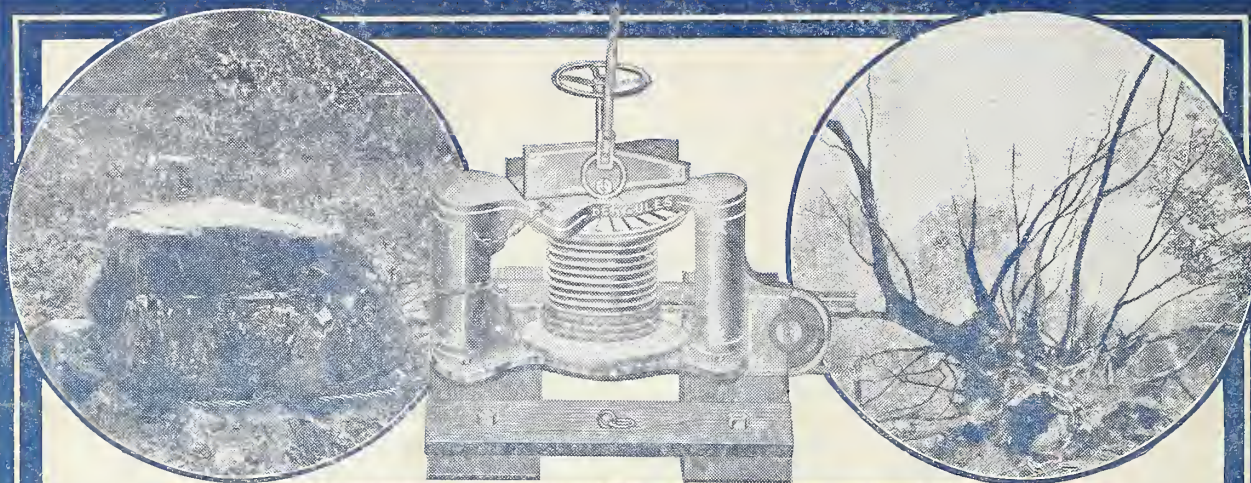
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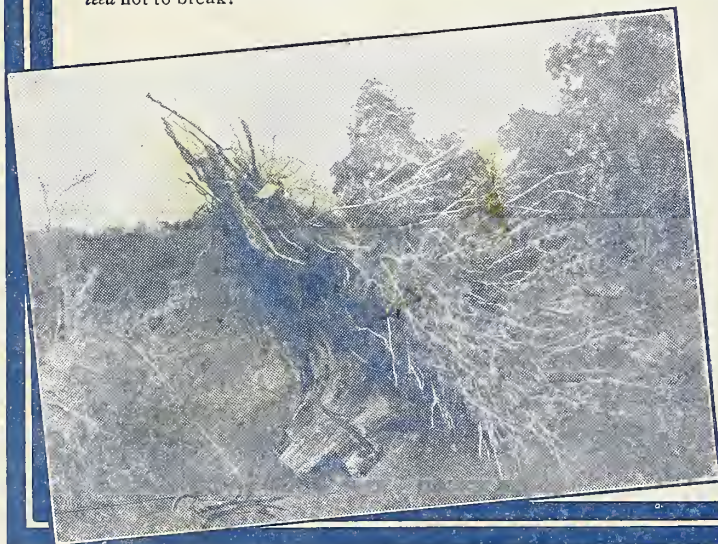
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